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# Effectiveness of Pre-Baccalaureate Health Careers Opportunity Programs (HCOP) for Disadvantaged Students in Three Southern States.

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# Effectiveness of Pre-Baccalaureate Health Careers Opportunity Programs (HCOP) for Disadvantaged Students in Three Southern States

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by

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ABSTRACT

Effectiveness of Pre-Baccalaureate Health Careers Opportunity Programs (HCOP) for Disadvantaged Students in Three Southern States

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This study evaluated three HCOP projects to determine, describe, and assess their overall effectiveness and identify successful strategies used by these projects to reach their specific objectives. Demographic and scholastic data were collected about 393 HCOP participants at the three HCOP projects in Kentucky, Tennessee, and Virginia during the years 1990-1999. Detailed information about the activities used to incorporate the HCOP legislative purposes into the programs was also collected.

Sixty-seven percent of HCOP participants were Caucasian and 78% were female. Scholastic data were limited to data from the EKU and ETSU HCOP programs. The average high school GPA score for HCOP participants in this study was 3.34 on a 4.0 scale. The average ACT score was 20.6. When compared with institutional data, HCOP students had a higher GPA than the regular first-year college students at the specific institutions. The average ACT scores were similar for the HCOP and regular students taking into account the standard error of measurement.

Ninety-three percent HCOP participants enrolled in college and 77% of them majored in a health profession programs. Fifty-eight percent of the HCOP participants graduated from a program of study and of those who graduated, 87% were from a health profession program. Eighty-seven percent of the HCOP participants were employed in a health profession. HCOP projects were required to conduct activities that addressed two or more legislative purposes. These legislative purposes were recruitment, preliminary education, facilitating entry, retention and dissemination of financial aid information. The activities of each project were summarized and the impact was discussed.

Students who participated in HCOP programs were likely to enroll and graduate from a health related major and become employed in a health profession. The researcher recommended the need for (a) individualized retention strategies to prevent or minimize attrition rates among participants, (b) the development of a uniform participant profile that would allow for accurate comparisons across institutions, (c) HCOP grantees to be more supportive of evaluative studies and, (d) dissemination of research findings on HCOP programs and their impact.

# DEDICATION

This dissertation is dedicated to the following people with all my love and appreciation:

To the love of my life, my husband, Ernie; your love, support, and encouragement sustained me, especially during those challenging times while pursuing this degree.

To my daughter, Michaela, who constantly prayed that mommy would finish her “dissertations”. Your simple faith has taught me much.

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# CHAPTER 1

# INTRODUCTION

The disparity between the proportions of underrepresented minorities in the population (25%) and in the health care workforce (10%) affects minority populations' access to health care (Health Workforce Newslink, 1999; Strayhorn, 2000). In order to reach parity with the population percentages, there would have to be a substantial increase in the current number of disadvantaged and minority health care providers (Health Resources and Services Administration Fact Sheet, 1998).

There is a need to develop a health care workforce that mirrors the general population in terms of ethnic/racial diversity. Increasing the number of disadvantaged practitioners in health and allied health professions is an integral part of the overall strategy to improve access and quality of health care for underserved citizens throughout the United States (Shields, 1991). The recruitment and training of individuals from unserved and underserved areas (disadvantaged populations) is based on the assumption that such individuals will be more inclined to work as health professionals in these underserved and unserved areas (Bauman, 1992; Cantor, Miles, Baker, & Barker, 1996; Carlisle, Gardner, & Liu, 1998; Gonzales, 1999; Xu, Fields, Laine, Veloski, Barzansky, & Martini, 1997). In order to develop a health care workforce that reflects the general population, educational institutions need to attract and retain these underrepresented groups to their programs.

Efforts to increase the number of underrepresented groups in higher education have resulted in several federal programs that provide funding to institutions and

organizations, with some being specific to health related professions. These enrichment programs are powerful tools used by colleges and universities to recruit disadvantaged students. The use of enrichment programs will "demystify science for disadvantaged students early on so they do not think that they're incapable of choosing science as a career" (Lee, 1992, p. 2391). Examples of such programs are the TRIO programs - Upward Bound, Educational Talent Search, and Student Support Services. The term "TRIO" was coined in the late sixties to describe three federal programs. Currently six programs come under the TRIO umbrella, which includes Educational Opportunity Centers and Ronald E. McNair Post-Baccalaureate Achievement, Upward Bound Math/Science (Greene, 1995). TRIO also includes two other programs, Training Program for Federal Programs Staff and TRIO Dissemination Partnership Program.

The Bureau of Health Professions (BHPR) in the Department of Health and Human Services is one of the federal agencies that have the task of providing leadership in increasing the number and quality of disadvantaged and minorities in health professions to provide health care in unserved or underserved areas in the United States. The BHPR provides grants that are concentrated in two programs: the Centers of Excellence (COE) and the Health Careers Opportunity Program (HCOP).

The goal of HCOP is to assist individuals from disadvantaged backgrounds to undertake education to enter a health profession and, thereby, increase the number of disadvantaged students entering and graduating from health profession programs (Health Resources and Services Administration Fact Sheet, 1998). An individual from a disadvantaged background is defined two ways: (1) One who comes from an environment that has inhibited the individual from obtaining the knowledge, skills, and

abilities required for enrolling in and graduating from a health profession, or an allied health profession school; or (2) One who comes from a family with an annual income below a level based on low-income thresholds according to family size published by the U.S. Bureau of Census (Health Careers Opportunity Program, 2000).

Most pre-baccalaureate programs have a career development component and a summer enrichment component. The career development component provides support services such as academic advising, counseling, growth development seminars, and social activities. The summer enrichment component is a six- to eight-week residential component that provides participants with an in-depth focus on the health professions and a chance to attend classes on a college campus. The program is designed to aid students in preparing academically and personally for the rigors of health career training (ETSU HCOP, 2000).

## Statement of the Problem

The problem of this study is to determine if HCOP programs are effective in meeting the goals of the program. The study determined if students who participated in HCOP enrolled and graduated from health profession programs, became employed in health professions, or sought post-baccalaureate health career training. This study also determined what characteristics of selected HCOP projects, based on the five legislative purposes, are associated with program success. The Division of Health Professions Diversity, through HCOP, has awarded grants for over 20 years to increase the diversity, quality, and public access to a health profession workforce that has a greater representation from minority and disadvantaged populations. According to, Mario

Manecci, the Acting Director of the Division of Health Professions Diversity of the Bureau of Health Professions, approximately five hundred and fifty million dollars has been spent to fund this program since its inception in 1972 (Personal Communication, June 29, 2000). Thurmond (1990) stated that published documentation of the success of these enrichment programs is limited and currently literature on HCOP program effectiveness is sparse.

An evaluation of the HCOP Summer programs conducted in 1994 stated, "No systematic effort has been made to describe their activities (HCOP); assess their curricula, methods, and faculty; or determine the salient attributes of those programs that were particularly effective" (HCOP Final Report, 1994, p. 1-6). The assumption is that these interventions will help to prevent dropouts in the health professions educational pipeline and increase the number of students who pursue higher education, specifically in the health professions.

## Purpose of the Study

The study addressed the problem by evaluating three HCOP programs to determine, describe, and assess their overall effectiveness and identify successful strategies used by these projects to reach their specific objectives. This study examined pre-baccalaureate HCOP programs at institutions of higher education in the states of Kentucky, Tennessee, and Virginia. The institutions that participated were: Eastern Kentucky University, East Tennessee State University, and Northern Virginia Community College.

## Significance of the Study

This study will have several implications for the HCOP enrichment program and other similar programs. The findings will add to the existing literature describing the effectiveness of academic enrichment programs, specifically the HCOP program. The results of the study will provide descriptive data needed by administrators and HCOP coordinators as they track and assess the impact of HCOP programs. The study will also identify what strategies enable a HCOP project to successfully accomplish program objectives.

## Research Questions

The following research questions were formulated:

1. Does participation in HCOP result in enrollment in a health profession program?
2. Does participation in HCOP result in graduation from a health profession program?
3. Does participation in HCOP result in enrollment in a post-baccalaureate health profession program?
4. Does participation in HCOP result in employment in a health profession?
5. Does a specific combination of program elements (recruitment, preliminary education, facilitating entry, retention, and financial aid dissemination) determine the level of success for selected HCOP programs?

## Limitations

The following are the limitations of this study:

1. The data gathered in this study are limited to pre-baccalaureate HCOPs in the selected states.

2. The study is limited to students who participated and completed the HCOP summer component in the years 1990-1999.
3. The specific characteristics of these HCOPs limited the generalizability of the results to other pre-baccalaureate HCOP programs.

## Definition of Terms

1. Disadvantaged Students – is defined as a student from an environment that has inhibited the individual from obtaining the knowledge, skills and abilities to succeed in a health professions school or from a program providing education or training in an allied health profession, and/a student from a family with an annual income below a level based on low-income thresholds according to family size (Health Careers Opportunity Program Definitions, 2000).
2. Enrollment Rates – is represented by the number of individuals who actually matriculate into an institution of higher education.
3. Family Characteristics - in this study are defined as those variables related to family income, marital status, parent's education level, and parent's occupation. These variables may impact overall student success.
4. Graduation Rates – is defined as the number of individuals who have successfully completed all the educational requirements for specified academic program of study or has met all the eligibility requirements for full certification/degree in a designated health profession (Health Careers Opportunity Program Definitions, 2000).
5. Health Profession – is an occupation that requires extensive education or specialized training with the specific function of maintaining physical and mental

health among the general population.

6. Health Professions Educational Pipeline – is defined as a conceptual framework in which the educational and social system, which produces health professionals, is viewed as a pipeline. Minority junior and senior high school students enter the system at the beginning of the pipeline; and dentists, osteopathic physicians, allopathic physicians, and other health professionals exit at the other end (HCOP Final Report, 1994).
7. Health Profession Program – is defined in this study as any program that leads to certification and/or degree in a health professional field.
8. HCOP Legislative Purposes – each HCOP project must address two or more of the program purposes as authorized by Congress to receive funds under HCOP. The legislative purposes are recruitment, preliminary education, facilitating entry, retention and financial aid dissemination (HCOP Final Report, 1994).
9. Medically Underserved Areas (MUA) or Health Profession Shortage Areas (HPSA) - are defined as areas in which physician-to-population ratio is approximately 1:3,500 and resources are shown to be over utilized, excessively distant, or otherwise inaccessible, such that accessing them takes considerable, taxing effort by individuals (Health Careers Opportunity Program Definitions, 2000).
10. Scholastic Variables - in this study are defined as a student's high school and college GPAs, ACT, and SAT scores.
11. Underrepresented minorities (URMs) – is defined with respect to a health profession, as racial or ethnic populations with lower representation in the health professions or health professions schools relative to the number of individuals in the general

population. This definition would include Black or African American, Hispanics, Mainland Puerto Ricans, Native Americans or Native Alaskans (Carlisle, Gardner, & Liu, 1998; Xu, et al., 1997).

## Overview of the Study

The literature review in Chapter 2 provides information regarding healthcare in the United States, in terms of access to care, shortages of health professionals in the workforce, and the underrepresentation of certain groups in health professions. Issues surrounding enrollment of disadvantaged populations in higher education are addressed. An overview of the role of the HCOP as an enrichment program that specifically targets disadvantaged populations is also discussed.

The research methodology is presented in Chapter 3. Data collected on HCOP participants' educational and/or employment status, race, gender, and family characteristics. Data about the characteristics of each HCOP program were obtained. A descriptive design and statistical analysis was used to obtain data to answer the research questions.

Chapter 4 includes results and data analysis and Chapter 5 provides a summary of findings, conclusions, and recommendations as a result of the study.

# CHAPTER 2

# REVIEW OF THE LITERATURE

## Introduction

In the previous century health care was an issue that few people discussed (Kronenfeld, 1993). During the 19th century and the first part of the 20th century, care in the home was the norm. At that time going to the hospital was rare and even dreaded. The hospitals had unfavorable reputations and were primarily for the poor and those who had contagious diseases (Rakich, Longest, & Darr, 1992). In the past 40 years, all of this has changed for the average, middle-class American (Kronenfeld). Although the fear of going to a hospital and going to the doctor is not erased, visiting a doctor and having medical procedures is more common event. Now most people go to the doctor as a means to help them stay well and prevent illness. Thus most Americans view access to care as vital to their overall well-being (Kronenfeld; Rakich et al.).

## Overview of Health Care in the United States

The United States health care system, as compared with other industrialized countries, is predominantly private. Doctors, hospitals, and other private suppliers or providers primarily sell health care in a free market. The system is employment-based and market driven, that is "if you can't pay you can't play." Private sector payments accounted for approximately 58% of the $666 billion national health expenditure for 1990 (Reagan, 1992). The United States is the only nation, besides South Africa, in which the public (government financed) sector share of health care is less that 60%

(Reagan, 1992). For the working-age population, health insurance is more a privilege of employment than a right of citizenship (Kovner & Salisburg, 1999).

The United States spends $1.5 trillion each year on health care (more than any other country per capita), but the health care delivery system does not seem to be performing as well as many other industrialized countries in terms of health status and insurance coverage (Kovner & Jonas, 1999). In terms of technology and research, the United States has one of the most sophisticated health industries in the world, but many of its citizens do not have access to health care (Kovner & Jonas).

## Access to Health Care

Satcher (1999) reported that in America there are 43 million uninsured persons. He also reported that many people who cannot afford health care and do not have insurance delay seeking care until their condition is severe. The issue of health care, particularly access to health care is "an important public policy goal for the nation" (Schur & Franco, 1999, p. 25).

Access can be defined as, "the timely use of personal health services to achieve the best possible outcome" (Millman, 1993, p. 4). The test of equity of access involves determining whether there are systematic differences in use and outcomes among groups in United States society and whether these differences result from financial or other barriers to care (Billings, 1999). In a 1992 report to the President and the Congress, former Secretary of Health and Human Services, Dr. Louis Sullivan stated, "Despite the improvement in the overall supply of health care personnel, serious concerns remain about access to health care for minority populations" (cited in Davis,

1995, p.61).

According to Millman (1993), barriers to access to health care can be categorized into three main types: (1) structural barriers, (2) financial barriers and, (3) personal and cultural barriers. Structural barriers are “impediments to medical care related directly to the number, type, concentration, location, or organizational configuration of health care providers” (Millman, p. 39). Federal estimates show that the nation has 29% more physicians than actually needed. The distribution of these physicians is such that some 47 million people live in inner cities and rural areas where there are not enough physicians (Cohen, 1998; Health Workforce Newslink, 1995). In remote rural areas the absence of a primary care practitioner or a hospital can have a serious impact on the ability to obtain timely care (Billings, 1999). Also, many of today’s poor still find it difficult to identify physicians who will accept Medicaid, this is mainly due to Medicaid’s low reimbursement rates (Davis, 1995; Millman).

Financial barriers may restrict access by either inhibiting the ability of patients to pay for needed medical services or by discouraging physicians and hospitals from treating patients of limited means (Millman, 1993). Health insurance is expensive and although there are uninsured persons across all income groups of the economy, the profile of a typical uninsured person might be a young adult in a low-wage job working for a small employer in the retail or services sector of the economy (Billings 1999; Reagan, 1992). The rising cost of health care has made it nearly impossible for most people to pay directly for medical bills when illness strikes (Millman). The poor and minorities bear a heavy share of the burden of the lack of insurance. In 1990, 55% of the uninsured were families with annual incomes of less than $20,000. African

Americans account for 12.7% of the American population but represent 17.4% of those without health care coverage. For Hispanics the numbers are just as abysmal. Hispanics constitute 9.3% of the population and represent 19.6% of those without health insurance (Millman; Reagan, 1992).

The third type of barrier is a personal and cultural barrier. Personal and cultural barriers may inhibit people who need medical attention from seeking it or from following recommended posttreatment guidelines (Millman, 1993). Physician biases, patient education levels, and patient health attitudes may result in the underuse of services thus affecting access by certain groups (Millman; Reagan 1992; Satcher, 1999). With the rapidly changing demographics in the United States, the health care workforce should reflect the population in order to ameliorate issue of access.

## Health Care Workforce

The health care workforce powers the health industry. Any effort to improve health care service or control costs must consider the supply, distribution, use, and education of the health care workforce (Kovner & Salisburg, 1999). The health care workforce is large and diverse. It ranges from highly educated and highly paid professionals to caregivers, skilled technicians, and semi-skilled workers. In 1994 nearly 12 million people were employed in the health care industry, approximately 10% of the nation's total workforce (Kovner & Salisburg). By the year 2006, the Department of Labor projects that health care services will jump 30% and account for 3.1 million new jobs (Mosser, 1999).

A number of reports and studies indicate that there is a need to produce

sufficient numbers and types of health professionals to meet the demands of a diverse society (Gupta & Konrad, 1992; Rami & Hansberry, 1994). Findings of the 1993 Pew Report stated that nurses and allied health professional would be essential players on the future primary and preventative health care system. Also the report emphasized the need to increase the number of minority health professionals, which was also a goal of the Healthy People 2000 document (Rami & Hansberry) and is carried over in the Healthy People 2010 document (U.S. Department of Health and Human Services, 2000).

Another important need, as stated in the Report of the Lower Mississippi Delta Commission (1990), is the recruitment of students into the health professions who are more likely to remain in inner cities and rural areas of the South (Rami & Hansberry, 1994). The Council on Graduate Medical Education (COGME) was authorized by Congress in 1986 to advise the federal government and Congress on issues related to the supply, distribution, and use of physicians (Kovner & Salisburg, 1999). The following are the findings reported regarding physician workforce reform that continue to be of importance:

1. The nation has too few generalists and too many specialists.
2. The problems of access to medical care persist in rural and inner-city areas despite large increases in the number of physicians.
3. The racial/ethnic composition of the nation's physicians does not reflect the general population and contributes to access problems for underrepresented minorities.
4. Shortages exist in the specialties of general surgery…and among generalist

physicians with geriatrics training.

5. With the framework of the present health care system, current physician-to-population ratio in the nation is adequate.
6. The national medical education system can be more responsive to public needs for more generalists, underrepresented minority physicians, and physicians for medically underserved rural and inner-city areas.
7. The absence of a national physician workforce plan, combined with financial and other disincentives are barriers to improved access to care. (Council on Graduate Medical Education (COGME), 1992, pp. 9 -12).

African Americans, Native Americans, Mexican Americans, and mainland Puerto Ricans remain severely underrepresented in the medical profession (Cohen, 1998). Although they account for 25% of the population, they constitute less than 8% of practicing physicians (Cohen; Strayhorn, 2000). The training of minorities to become health professionals is a means of overcoming a barrier of access to health care for minorities and facilitate in improving the health of all Americans (Lurie, 1999). Investing in the education of minorities is possibly a cost-effective solution to the health needs of the United States. Trevino, Sumaya, Miranda, Martinez and Saldana (1993) stated that the United States government can choose to invest significant amounts of funds in a physician who is likely to practice in areas where there is a surplus of physicians or train underrepresented minorities who are most likely to practice in an underserved area were his/her services are needed. Xu et al. (1997) stated that underrepresented minority physicians reported “caring for a higher percentage of Medicaid patients and poor patients than did White and Asian American physicians, and physicians were likely

to serve a higher proportion of patients with a racial or ethnic background similar to their own" (p.820).

The challenge is to produce sufficient numbers and types of health professionals to meet the demands of a diverse society. Physician supply and other health care professionals must include those who have shared cultures and backgrounds with patients and who can effectively communicate with their patients (Satcher, 1999). Another challenge is to revolutionize the education system through changing attitudes and methodologies used to educate professionals (Rami & Hansberry, 1994). There is an identifiable shortage of minority health care professionals, and it is more pronounced in underserved areas where there is usually a high percentage of minority and disadvantaged persons. There is a need to train more persons from these communities.

## Educating Minority Students for Health Professions

Prior to 1968 there was little commitment by the nation's medical schools to the medical education of students from minority groups (Odegaard, 1977). At that time, African Americans made up 2.5 % of physicians and less than 0.2% of medical students were Mexican American, Puerto Rican, or American Indian/Native Alaskan (Carlisle et al, 1998). During the 1970s a number of professional schools initiated programs aimed at bringing African Americans, the disadvantaged, and other previously excluded groups into the mainstream of graduate and professional education and thus eventually into the health professions, particularly medicine (Lourenco, 1983). As a result the number of minority students in US medical schools increased, reaching 10% of all enrollments in 1974 (Carlisle et al.).

In the mid- to-late 1980s, the Association of American Medical Colleges (AAMC) concluded that the fundamental cause of minority underrepresentation is that only a small number of minority and disadvantaged young people are both academically prepared for and interested in careers in the health professions (Nickens, 1999). Any long range solution to providing a sufficient pool of qualified minority / disadvantaged group applicants to health professions education will depend heavily on improved education below the professional level and also below the undergraduate level (Gonzales, 1999; Goodell, Visco, & Pollock, 1999; Lourenco, 1983).

Increasing the number of minority and disadvantaged practitioners in the health and allied professions is important in the strategy to improve access and quality of health care for underserved citizens in the United States (Davis & Davidson, 1982; Greene, 1998; Lurie, 1999; Shields, 1991). One of the best ways to attain diversity within the health professions is simply to increase the number of qualified URM applicants, so that greater numbers of students from groups underrepresented in health professions can be selected (Thomson & Denk, 1999).

## Barriers to Higher Education

Several barriers exist for minority / disadvantaged students that limit their entrance into and successful outcomes in higher education (Bediako, McDermott, Bleich, & Colliver 1996; Davis & Davidson, 1982; Goodell et al, 1999; Gonzales, 1999; Greene 1998; Lourenco, 1983; Shields, 1991; Taylor & Rust, 1999). Many of these students lack awareness or have limited information about the health careers available (Carline, Patterson, Davis, & Irby, 1998; Davis & Davidson; Gonzales; Greene; Shields).

Another barrier is that they lack guidance and encouragement in high school and college. Their exposure to health profession opportunities through teachers or parents is limited or nonexistent (Davis, 1995; Greene; Shields). Admission policies at some health professions schools or programs that have limited the accessibility to education for minority groups serve as a barrier (Bauman, 1992).

Another barrier is the substantial costs of obtaining an education in a health profession. Minority and/or disadvantaged students are many times unaware of the financial aid and scholarships that are available to them that will assist in the cost of college (Goodell et al., 1999; Shields, 1991). Another barrier is the relatively high attrition rates after matriculation. These students need special support services to prevent attrition (Shields; Taylor & Rust, 1999). Individualized attention can facilitate the entry of minority and/or disadvantaged students into health education (Bediako et al., 1996).

Inadequate academic preparation for higher education, especially in the area of sciences and math is cited as the major barrier for these students (Bediako et al.,1996; Coffman, Rosenoff & Grumbach, 2001; Davis & Davidson, 1982; Gonzales, 1999; Goodell et al.,1999; Shields, 1991;). Bediako et al. stated that serious deficiencies existed in educational programs offered to the nation's minority and/or economically disadvantaged students. Bauman (1992) stated that minority students have not had the kind of education and training during formative years that support academic advancement. Very few minority and/or economically disadvantaged students enroll in academically oriented courses, such as algebra I and II, geometry, and laboratory-based science courses throughout their pre-college years (Goodell et al., 1999).

McKendall, Simoyi, Chester, and Rye, (2000) reported that if underrepresented students do not receive adequate preparation in pre-college science and math, the proportion who can attend college and achieve success continues to be limited and the pool for health professions will continue to be too small. If these barriers remain in place and are not removed, the advancement of minority groups in the health professions will continue to be stifled.

Enrichment Programs

Efforts to increase this representation have been based upon two strategies: (a) the development of early educational programs and experiences to gain the interest of and better prepare potential students and, (b) the implementation of financial, educational, and social support programs to encourage retention of matriculated students (Acker, Freeman & Williams, 1988). Research showed that minorities or disadvantaged populations are underprepared for the rigors of college education, which has resulted in the establishment of enrichment programs (Bediako et al., 1996; Davis & Davidson, 1982; Goodell et al., 1999; Gonzales, 1999; Shields, 1991). These programs provide a means by which these students can improve on academic and social skills that will enable them to have a better chance of enrolling in and completing a degree. The initial idea of early academic enrichment programs was to inspire and motivate students to prepare for college in a general way. In response to stiffer competition and more selective admissions standards, the focus has shifted to a concentration on career goals, as opposed to programs that simply provide basic information (Rodriguez, 1997).

Minority and/or disadvantaged students need to be targeted before they finish

high school as to the possibilities of a career in the health profession; some even believe that these students must be identified as early as the elementary grades (Lee, 1992; Gonzales, 1999; McKendall et al., 2000). Two characteristics of URM students – lack of awareness about health career opportunities and academic deficiencies – led to the development of programs focusing on high school students. Marshall (1973) stated the following about the importance of targeting URM at the high school level:

> [High schools] represent a crucial link in the supply line of minority power, for inadequate high schools act to deny college opportunity for most entering ninth graders…. In considering how to increase the size and upgrade the academic quality of the minority applicant pool, medical schools have placed primary emphasis on what colleges should do and secondary emphasis on what medical schools should do; the role of high schools has rarely been afforded even tertiary consideration. (p. 135)

The rationale for preparing high school students for careers in the health professions was based on the literature that demonstrates the effectiveness of high school programs in increasing the pool of minority health professionals (Gunby, 1978). It is also the assumption that an early identification program would involve both the prevention of academic defects and remedial assistance for minority students with manageable academic problems (Davis & Davidson, 1982). Thus creating a pipeline from high school to medical school or other health profession is very important in increasing the number of underrepresented minorities in the health professions (Thurmond & Cregler, 1999).

Enrichment programs were developed to increase the pool of qualified URM

students who apply to matriculate in and graduate from medical and/or health professions school. However, there is little reported evidence that these programs have had the intended effect (Carline, Patterson, & Davis, 1998; Carline, Patterson, Davis, et al, 1998; Hoyte, 1995; Strayhorn, 1999).

Carline, Patterson, and Davis (1998) reviewed the literature published from 1966 to 1996 for discussions of programs sponsored by medical schools and affiliated programs to recruit and retain underrepresented minorities in medicine. They found 30 articles that described a total of 20 programs for undergraduate college students. The 20 college-level enrichment programs included one or more of the following program components: academic enrichment, admission preparation, career counseling, motivation, mentorship, and research apprenticeship. The most frequently included component was academic enhancement (18 programs) and the least frequent component was mentorship, which was included in only four programs.

Eighteen of the 20 programs had included evaluations of the program. The evaluative measurement most used (14 programs) was the percentage of participants who subsequently entered medical schools. It was concluded that although enrichment programs for college students claim to send significantly large percentages of their participants on to medical school, these results were difficult to interpret, as the studies did not use control groups. Therefore, the evaluations could not demonstrate that the programs were responsible for increased admission of minorities to medical schools. It was also concluded that there was a lack of evidence as to which program components were effective.

Carline, Patterson, Davis, et al. (1998) reviewed the literature published from

1966 to 1996 to identify enrichment programs for underrepresented minority pre-college students. They found 19 articles describing 27 programs. Like the previous study, they categorized the reported programs according to components they contained. Twelve of the 27 programs were evaluated in the literature. Eight evaluations focused on identifying the number of students who continued their education into college and professional schools. Five programs reported participant satisfaction or identified other short-term outcomes such as gains on standardized tests. They found few evaluations that measured actual academic progress of students, where participants were followed longitudinally. The lack of comparison groups severely limited the ability to state that program participation significantly contributed to academic success or career choice. Carline, Patterson, Davis et al (1998) stated that based on the published literature, "The effectiveness of particular programs and program components is impossible to determine. More rigorous evaluation and research are needed" (p.298).

## Health Careers Opportunity Program (HCOP)

Among the programs designed to encourage minority and/or disadvantaged students to prepare for careers in the health professions is the Health Careers Opportunity Program (HCOP). HCOP receives federal funds to identify and recruit economically/ academically disadvantaged students of all races for education and training in a health profession. Targeting underrepresented minorities and disadvantaged populations who are considered more acutely disadvantaged than other students is a top priority for HCOP, but its services are open to anyone (Lee, 1992). In the 1960s, the United States was facing a severe shortage of health professionals in all

categories, so the Congress enacted the Health Profession Educational Assistance Act of 1963 (PL88-129). It was designed to increase the number of health professionals. As a result, significant increases were achieved in the total number of health profession students and practitioners; however, the representation of minorities in health professions remained extremely low. Enrollment of underrepresented minorities in health profession schools ranged from a high of 5.6% in medicine to a low of 2% in optometry (Testoff & Aronoff, 1983).

In 1972, the Special Health Career Opportunity Grant (SHCOG) Program was enacted under Section 774 (b) of the Health Manpower Education Initiative Awards (HMEIA). SHCOG's intent was to increase the total number of health professionals and address the issue of underrepresented minorities and disadvantaged persons.

In 1978, HCOP succeeded the SHCOG program. Through the awarding of grants to undergraduate colleges and health professional schools, the HCOP mandate was to increase the number of disadvantaged students from all races enrolled in and graduated from health profession programs (Testoff & Aronoff, 1983). Since its existence, HCOP has facilitated the entrance and graduation of thousands of minority students. (Hoyte, 1995; Lee,1992).

The objective of training sufficient numbers of health professionals armed with cultural sensitivity and commitment required to effectively serve underserved Americans is an important goal of the HCOP program. Individuals who benefit from HCOP-supported programs come from all racial and ethnic populations. However, African Americans and Hispanics make up 58% and 25% respectively of the student group that use the program. This seems to indicate a high level of perceived need among these

student groups and the academic institutions that serve them (HCOP Final Report, 1994).

To be eligible for HCOP funding grant applicants must address seven HCOP purposes (Health Professions Education Partnerships Act of 1998). The seven HCOP purposes are:

1. Recruitment – Activities to identify, recruit, and select persons from disadvantaged backgrounds for education and training in a health profession (Fenske, Geranios, Keller & Moore, 1997; Gonzales, 1999; Lewis, 1996; Shields, 1991; Testoff & Aronoff, 1983).
2. Preliminary Education - Pre-professional education designed to expand the academic ability and otherwise prepare student participants from disadvantaged backgrounds during their pre-professional training that they may subsequently complete the regular course of education in a health professions school or school of allied health (Hoyte, 1995).
3. Facilitating Entry – Activities designed to help student participants from disadvantaged backgrounds who are accepted or enrolled in a health professions school to complete the education (Atkinson, Spratley & Simpson, 1994; Gonzales, 1999; Hoyte, 1995; Lewis, 1996; Shields, 1991; Testoff & Aronoff, 1983).
4. Retention - Provide counseling or other services such as tutorial activities, to help them complete their education successfully (Atkinson et al.,1994; Hoyte, 1995; Lewis, 1996; Gonzales, 1999; Shields, 1991; Testoff & Aronoff, 1983).
5. Financial Aid Information Dissemination – Publicize existing sources of financial

aid available to students at health professions schools (Gonzales, 1999; Hoyte, 1995; Lee, 1992; Testoff & Aronoff, 1983).

6. Primary Care Exposure Activities – Carry out programs under which individuals gain experience regarding a career in a field of primary health care through working at facilities of public or private nonprofit community-based providers of primary health services (HCOP Application and Instructions, 2001; Health Professions Education Partnerships Act of 1998).
7. Development of a more competitive applicant pool – conduct activities to develop a larger and more competitive applicant pool through partnerships with institutions of higher education, school districts, and other community-based entities (HCOP Application and Instructions; Health Professions Education Partnerships Act of 1998).

Other activities that HCOP funds may be used for are stipends for education in student enhancement programs and scholarships for health professions education at a health or allied health professional school.

Undergraduate and graduate university or college programs are eligible to operate projects funded through HCOP. Other entities that eligible to receive funds are health professional training schools, and community-based organizations. Some projects occur during the academic year; however, the majority of HCOP efforts are offered during the summer. All HCOP projects receive funding based on activities related to the HCOP purposes. A legislative funding preference is applied to approved HCOP applications that involve a comprehensive approach. According to the HCOP application guidelines,

> A comprehensive approach incorporates a network of formally linked partners working in a coordinated effort to intervene in a specific geographical area in the social, educational, and cultural competence development of disadvantaged students from the middle and secondary levels through health professions training. These linked entities, working as a cooperative partnership, address the problems and barriers that prevent disadvantaged students from being competitive in meeting admissions requirements for health or allied health programs. By expanding interventions into the middle and secondary educational levels, there is greater assurance of a more competitive applicant pool for admission to health and allied health programs (HCOP Application and Instructions, 2001, p.9).

The pathway to becoming a health professional can be viewed as a pipeline (See Figure 1). Minority and disadvantaged populations enter at the beginning of the pipeline and health professionals exit (HCOP Final Report, 1994). As a result several models are used by the HCOP projects to meet the objectives of enriching the academic background of disadvantaged students. The College Enrichment Model targets disadvantaged high school juniors and seniors. It is designed to build confidence and strengthen science and mathematical skills through hands-on, problem-solving exercises in the sciences, mathematics, and physics. The Facilitating Entry Model summer project targets college juniors and tends to focus on a single career path and strengthening participants' performance on standardized tests such as the MCAT and DAT.

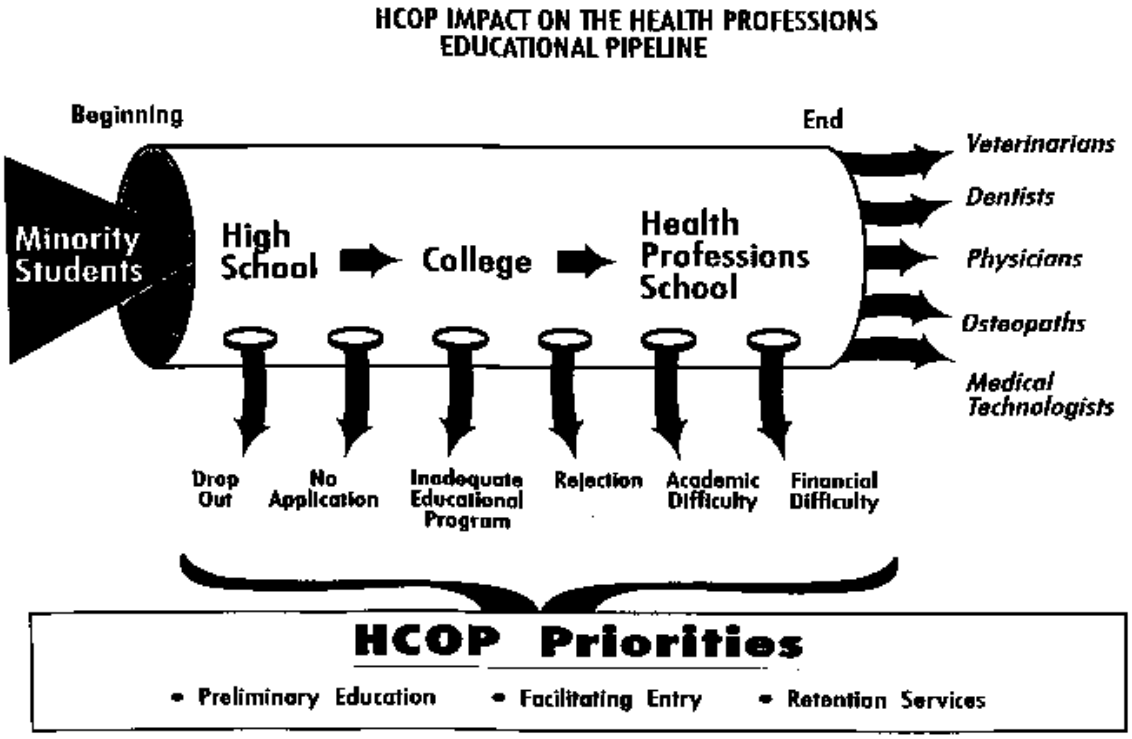


Figure 1. HCOP Impact on the Health Professions Educational Pipeline. Source: HCOP Final Report. (1994). Bureau of Health Professions. Division of Disadvantaged Assistance. Rockville, MD: Department of Health & Human Services.

Another model is the Retention Model, which supports disadvantaged students who have been accepted to health profession and allied health professions programs. It commences in the summer prior to enrollment in first-year classes with a pre-matriculation program that provides an introduction to the rigor and intensity of the first-year health professions school courses. The Post-baccalaureate Program Model focuses on disadvantaged college graduates who have either received a rejection from a health professions school or made a late decision to enter a health professions program (HCOP Final Report, 1994).

Several reports (Jackson & McGlinn, 1994; Testoff & Aronoff, 1983; Thomas, 1994) agreed that HCOP-funded programs have indeed been successful in directly or indirectly assisting thousands of minority or disadvantaged students to enter and graduate from, health professions schools. However, Hoyte (1995) reported that the "researchers' ability to independently assess specific HCOP approaches, let alone to draw comparative conclusions are hindered by the limited availability of statistically validated data necessary for quantitative evaluation" (p. 48). There are a few programs that have produced statistically significant data that strongly suggests correlation between its interventions and students' post-program academic performance.

Hoyte (1995) highlighted Xavier University's HCOP program as a program that has been effective in cultivating and nurturing critical thinking, problem solving, and test taking skills of minority / disadvantaged students preparing for careers in the health professions. The most significant evidence of this is demonstrated by statistically significant increases in participant grades and MCAT scores, which aid their students in becoming more competitive for acceptance directly into a regular freshman medical, dental, or pharmacy class. The Summer Science Academy is multi-tiered and multi-year summer program that assists URM students at various stages of the educational pipeline.

Xavier provided the following evidence that supported its claim that its HCOP program has been effective:

a. The number of students from the Xavier program who gained entry into health profession schools almost tripled, from an average of 44 per year 1976 – 1978 to an average of 131, between 1990 and 1993.

b. Xavier currently (1994) places more African Americans into pharmacy school and medical school than any other institution.
c. The Nelson-Denny Reading and PSAT post-participation tests show consistent gains over pre-participation tests each year from 1985 through 1993.
d. The summer program participation has been associated with a reduction in the drop-out rate from the pre-medical curriculum – from 43.6% in 1984 to 15.1% in 1993 (Hoyte, 1995).

Another program that suggested correlation between its interventions and students' post-program performance is the Medical/Dental Education Preparatory Program (MEDPREP) of the Southern Illinois University School of Medicine. From 1972 to 1992, the MEDPREP program has served 584 URM and educationally disadvantaged students as they prepared for admissions to health professional schools (Jackson & McGlinn, 1994). This study involved the tracking of 584 students who had concluded their participation in the program by September 1992. The data for the study were collected from student records, professional schools to confirm enrollment and graduation of former MEDPREP students, and a health professions directory. Students were tracked to determine the number accepted by health professional schools, the types of professional schools attended, the number graduated, and the number practicing their professions.

The results reported that of the 584 MEDPREP participants, 70% (407) were URM; 66% (384) were African American; 56% (326) were men; 38% (223) were URM men, and 31.5% (184) were URM women. In all, 60% (350) of the participants were

accepted into health professional schools; 70% (246) of those accepted were URMs, accounting for 60% of the 407 URM participants. As of 1992 the status of these 350 students was as follows: 196 students (56%) had graduated from professional schools; 105 (30%) were enrolled in professional schools; 45 students (13%) had withdrawn or been dismissed from school and four students (1%) accepted to medical school had not matriculated.

Jackson and McGlinn (1994) concluded that in a supportive environment students considered to be at-risk because of their need to improve their academic records worked harder to earn better grades, attained higher MCAT scores, and developed skills for success in professional school. This program may be considered a model program to achieve parity in the health care professions.

Another program that merits mentioning is the University of Massachusetts Medical Center (UMMC) High school Health Careers Program. The UMMC, as a result of institutional commitment to attract and train minority individuals, developed this program. The goal of the program is “to stimulate interest in the health professions and to enhance academic profiles of junior and senior high school students” (Bauman, 1992, p. 26). The program involved students with all the components of the medical school – medical students, residents, physicians, and professors in the school. The application process was modeled after the process a medical student would go when applying to medical school. Twenty students are selected each year to participate. Each participant is assigned a mentor (a physician or other health professional) to whom he or she is responsible. Teaching focuses on the challenge to motivate and teach the students to think within the medical, academic and scientific. The approach to learning is illustrated

by the implementation of the biology class,

> The staff's basic scientists give didactic instruction on the physiology of the circulatory system. The dissection of a calf heart in the laboratory and a viewing of a video recording of an open-heart surgical procedure follow this. After this, students meet with a cardiovascular surgeon to discuss pre-surgical, surgical, and post-surgical management of a given patient with cardiovascular disease. Eventually students go into the surgery suite to observe the open-heart surgery (Bauman, 1992, pp. 27-28).

There are formal writing classes and students are also taught test-taking skills and participate in discussion of cultural matters that affect them as minorities entering the field of medicine. Follow-up and evaluation of program participants revealed that the post program results (PSAT and SAT) were significantly higher than the pre-program scores. More than that, as a result of the interactions during and after the program students recognized they are valuable members of the society, they possessed the qualifications to pursue careers in the health professions and this belief can be transmitted to their siblings and other members of their social group (Bauman, 1992).

There are new challenges facing HCOP-funded programs as a result of shifting political and economic priorities (Hoyte, 1995). These issues include health care reform; downsizing trends in hospitals and health care agencies reducing the number of slots available for residencies and entry level health professional positions; and many health profession school applicants are facing increasing competition for a decreasing number of slots. Within this environment, HCOP-funded programs can continue to play a critical

role in improving the competitive level of minority / disadvantaged health profession school applicants.

## Summary of the Review of Literature

The lack of minority and disadvantaged health practitioners is significant because it impinges on the quality and availability of primary health care in underserved communities. Generally, minority and disadvantaged health providers are more likely to serve underserved patients for a variety of reasons. Finding a solution to the problem of minority and disadvantaged groups' underrepresentation is an important step in securing equity both in educational career opportunities for these groups, and in improving the quality and availability of health care in underserved communities.

In response to the underrepresentation of minorities and other disadvantaged groups in health professions, there was a rise in the number of enrichment programs. The programs spanned from interventions at the elementary to post-baccalaureate level to ensure the movement of minorities and disadvantaged students through the health profession pipeline. Among these programs is the Health Careers Opportunity Program, which targets minority or disadvantaged persons to assist them in preparing for careers in the health professions.

Studies of enrichment programs focused on tracking students who did enter medical or other health care careers. Although the literature indicated that most of the programs reported successful outcomes, many of the programs did not provide sufficient evaluative data that would validate whether successful outcomes could be attributed to participation in the program.

# CHAPTER 3

# METHODOLOGY

This chapter consists of descriptions of the population, the research design, the instrument, the data collection procedures, the research questions, and the data analysis methods that were used in the study.

## Description of the Study

The purpose of this study was to describe participation in pre-baccalaureate HCOP enrichment programs and enrollment in and graduation from health profession programs. The study described the characteristics of a HCOP program that may impact the success of HCOP participants. The study employed data from three institutions of higher education in Kentucky, Tennessee, and Virginia. These sites were selected on the basis of the HCOP projects' geographical location (southern states); the ethnic origins of the targeted participants (a variety of ethnicities are represented); and the project structure (pre-baccalaureate focus). Records of HCOP participants were examined and demographic, scholastic, and current employment data was extracted. The HCOP coordinators described in detail the activities that are incorporated in their HCOP program to support HCOP's legislative purposes.

## Population

The population for this study was students who were enrolled in and completed the HCOP summer program from 1990 to 1999 at the three participating institutions of

higher education. Students who participated in the HCOP program met the criteria of being either economically or academically disadvantaged according to the specified guidelines. The HCOP application guidelines stated that,

> An individual is considered "economically disadvantaged" if they:
> come from a family with an annual income at or below low-income thresholds according to family size, published by the U.S. Bureau of Census, adjusted annually for changes in the Consumer Price Index, and adjusted by the Secretary for use in all health and allied health profession programs. An individual is considered "educationally disadvantaged" if they: come from an environment that has inhibited the individual from obtaining the knowledge skills, and abilities required to enroll in and graduate from a health profession school or allied health program (HCOP Application and Instructions, 2001).

For this study 392 high school juniors or seniors and one nontraditional student participated in the HCOP programs at the selected institutions during the years 1990-1999.

## Research Design

A descriptive design and statistical analysis was used to address the research problem. Descriptive research provides information about one or more variables. The purpose of descriptive research is to create an accurate picture of one or more variables and to answer questions about a variable's status (Hittleman & Simon, 1992; Borg & Gall, 1989). Basic statistical procedures were used to calculate the means and frequencies to obtain summative information on each variable. Two-way contingency

tables were also used to analyze the data.

The limitation of a descriptive design is, it is not a good method for assessing the cause-effect relationship that might exist between a program and its outcome. The research questions listed in Chapter 1 were used as the basic focus for this investigation.

## Instrumentation

The data collection instrument was used to gather demographic and scholastic information from the students' records (Appendix A) at the selected HCOP projects. A grant requirement is that all students who participate in the summer project are "tracked" or followed as they progress through the "health professions pipeline" – disadvantaged junior and senior high school students enter the system at the beginning of the pipeline; and health professional exit at the other end (HCOP Final Report, 1994).

The data collection instrument served as a guide for the data collection process. It is a compilation of information taken from the ETSU HCOP tracking survey and information required for the HCOP progress report. There were missing and incomplete data, such as with the number of participants enrolled in post-baccalaureate studies. That particular category was underreported so the researcher reported what was found with the data provided and noted possible factors that may have contributed to incomplete data.

Another instrument used was the HCOP Legislative Purposes Instrument. It was used to collect general information about the HCOP project and to determine which legislative purposes each of the selected HCOP programs addressed (See Appendix

B). The HCOP coordinators provided descriptive details about the activities employed to implement the legislative purposes that were identified.

## Data Collection Procedures

Initially six HCOP projects at various institutions were targeted. One of these HCOP projects was relatively new, so there was not sufficient data on participants to include the project. There was no response from HCOP coordinators/directors at two institutions. Ultimately, from this first round, only two of the six institutions targeted consented to participate – East Tennessee State University (ETSU) and Northern Virginia Community College (NVCC)

The researcher searched the Bureau of Health Profession's website for more institutions that met the selection requirements of the study – geographical location, ethnic origins of participants, and project structure. Another focus was institution type – public state-funded institution, private institution, or community college. The next round of solicitations involved four more institutions. The researcher was able to secure consent from two institutions. One institution in this group project started in 1999, so the data would not yield the information needed to sufficiently address the research questions. Another institution that consented to participate did not provide data that could be used for analysis. The researcher was only able to secure consent from one other institution – Eastern Kentucky University.

This part of the process was the most frustrating for the researcher. The responses to the request for participation ranged from the individual being too busy to participate or no response to repeated email messages and telephone messages.

Three institutions committed to participate in the study.

The East Tennessee State University HCOP Coordinator made initial contact by electronic mail with the HCOP coordinators at the other two institutions of higher education (See Appendix C). These institutions were Eastern Kentucky University and Northern Virginia Community College.

The initial electronic mail served as a letter of introduction, explained the purpose of the study, and requested participation in the study. The researcher followed-up the HCOP Coordinator's initial contact with another electronic mail message. The follow-up email contained detailed information about the study and solicited their participation in the study (See Appendix D).

The HCOP directors from the two institutions responded by email and consented to participate and requested more information. Several days later the researcher followed up the two initial contacts with a telephone call to each of the HCOP coordinators to discuss participation and answered any questions that the HCOP coordinators may have regarding the study.

Once the researcher received consent from the selected HCOPs to participate in the study, it was determined what type of database or record-keeping method each HCOP office used. The researcher proposed two possible methods of data collection: 1) The researcher could travel to the institution and collect the data from the records using the data collection instrument or 2) The HCOP coordinator could supply the information from the records to the researcher. The researcher assured the HCOP Coordinators of confidentiality of the information obtained.

The researcher collected the data from the records of HCOP participants at

ETSU. The HCOP coordinators at EKU and NVCC elected to provide the data to the researcher. The EKU HCOP coordinator used the data collection instrument provided by the researcher to collect the data from the participants' records. The NVCC HCOP director made available to the researcher the NVCC HCOP's Disadvantaged Assistance Tracking and Outcome Report (DATOR) for data analysis.

The intended purpose of the data collection was to obtain sufficient information from the data collection methods to give a descriptive picture of the HCOP program and its participants and identify the successful strategies used by these projects. Each variable in the study was assessed and summarized using basic statistical procedures.

## Research Questions

The research questions are:

1. Does participation in HCOP result in enrollment in a health profession program?
2. Does participation in HCOP result in graduation from a health profession program?
3. Does participation in HCOP result in enrollment in a post-baccalaureate health profession program?
4. Does participation in HCOP result in employment in a health profession?
5. Does a specific combination of program elements (recruitment, preliminary education, facilitating entry, retention, and financial aid dissemination) determine the level of success for selected HCOP programs?

## Data Analysis Methods

The researcher analyzed data from the study using descriptive statistical procedures outlined in *A Step-by-Step Approach to Using the SAS® System for Univariate and Multivariate Statistics* (Hatcher & Stepanski, 1994). Descriptive statistics are useful in organizing and summarizing data. The items in the data collection instrument provided numerical (ACT and SAT scores, high school and college GPA) and categorical values (gender and ethnicity). The descriptive statistical analysis focused on the measurement of HCOP participants' characteristics by defining the population, assessing each member of the population, and arriving at a summary value.

## Summary

This chapter presented a general overview of the study, a brief discussion of the target population, research design, instrumentation, data collection procedures, research questions, and methods of data analysis. A descriptive research method was considered an appropriate research tool for this study. The instruments used in this study were designed to gather information on the demographic and scholastic characteristics of persons who participated in the selected HCOP projects.

# CHAPTER 4

# RESULTS AND DATA ANALYSIS

## Introduction

The purpose of this chapter is to report the results of the study as they relate to the specific research questions. The research required the use of a data collection instrument to gather demographic data about HCOP participants, college enrollment, and graduation from a program of study and to determine what career path the HCOP participants had pursued. The data described the demographic characteristics, enrollment, graduation, and career choices of the HCOP participants at the selected institutions.

A second instrument, the HCOP purposes instrument, was used to collect data on program elements of each HCOP program. The program elements are the legislative purposes that the HCOP project must address. Each project must address two or more of the five legislative purposes – recruitment, preliminary education, facilitating entry, retention, and financial aid information dissemination (HCOP Final Report, 1994).

The Health Profession Education Partnerships Act of 1998 amended Section 739 of the Public Health Service Act. Under these new guidelines, HCOP applicants are required to conduct activities related to 7 HCOP program purposes. The new or expanded HCOP purposes are as follows: recruitment, facilitating entry, counseling, mentoring and other services, preliminary education and health research training, financial aid information dissemination, primary care exposure activities, and the development of a more competitive applicant pool (HCOP Application and Instructions,

2001; Health Professions Education Partnership Act, 1998). The first five are from the old guidelines and the last two are new.

The institutions that are included in this study were under the first set of guidelines. Those guidelines were used as a guide to answer the research question dealing with legislative purposes. First, the researcher summarized program information from the legislative purposes instrument and then addressed the activities implemented by each HCOP associated with each legislative purpose.

Data reported for the demographic and scholastic sections of the data collection instrument are analyzed and presented in this chapter. The data collection instrument was designed to collect nominal data from the program records of HCOP participants. Comparison demographic and scholastic data were obtained from online university factbooks and institutional common data sets and are presented in this chapter. Data obtained from the HCOP purposes instrument appear in Appendix D.

The Division of Health Professions Diversity, which monitors HCOP projects, requires each HCOP project to submit, along with a progress report, a uniform tracking form called the Disadvantaged Assistance Tracking and Outcome Report (DATOR) to determine the progress of HCOP participants. Additionally, each HCOP project has its own application form and chooses what information is collected on participants. Therefore, some data were not available to the researcher, such as high school GPAs, ACT scores and college GPAs.

The results from the data collection instrument are reported institution by institution, in the following order: Eastern Kentucky University, East Tennessee State University, and Northern Virginia Community College. After presenting the individual

results for each institution, the research questions were addressed using the combined data from the selected institutions.

Demographic and Scholastic Characteristics of Eastern Kentucky University HCOP Participants

Eastern Kentucky University (EKU) is a comprehensive university serving more than 15,000 students through 150-degree programs and program options. The goal of EKU is "to fulfill the threefold purpose higher education – teaching, public service and research – and puts emphasis on the three in that order" (EKU Online Factbook, 2001). The EKU HCOP program's goal is to assist disadvantaged students from the Appalachia Kentucky region who are pursuing a degree in a health profession major. The objective of EKU HCOP is to increase the pool of health professional originating from, and eventually practicing their profession in the Appalachia Kentucky region.

EKU HCOP helps students succeed in their course of study at the university through services such as 6-week Summer Transition and Enrichment Program (STEP), which is designed to help students prepare for the transition from high school to the demands of college. (EKU HCOP, 2001). Two other features of the program are supplemental instruction and the plus program. (EKU HCOP Grant Proposal, 1993; EKU HCOP, 2001). Supplemental instruction focuses on the 'at-risk' or 'gatekeeper' courses and provides assistance to students enrolled in those courses. Gatekeeper courses are identified as those required courses for allied health program majors, in which many students experience difficulty due to a lack of high school preparation in math and science (EKU HCOP Grant Proposal, 1993). The "Plus" program is a

mentoring program in which EKU HCOP participants are matched with a former HCOP participant or HCOP faculty member to assist in the transition from high school to college (EKU HCOP, 2001).

From 1994 to 1999 Eastern Kentucky University had 175 participants in its HCOP program. The majority of EKU HCOP participants were from blue-collar families and were first generation college students. Eighty-one percent of the participants were female and 19% were males (see Table 1). The number of male participants, while remaining relatively low when compared with the number of female participants, increased over the six-year period.

TABLE 1

EKU HCOP Participants by HCOP Year and Gender

| | Gender | | | |
|---|---|---|---|---|
| | Male | | Female | |
| HCOP Year | N | % | N | % |
| 1994 | 3 | 10 | 27 | 90 |
| 1995 | 5 | 17 | 25 | 83 |
| 1996 | 7 | 23 | 23 | 77 |
| 1997 | 6 | 21 | 23 | 79 |
| 1998 | 5 | 19 | 22 | 81 |
| 1999 | 8 | 28 | 21 | 72 |
| TOTAL | 34 | 19 | 141 | 81 |

EKU HCOP project participants are individuals who are financially or academically disadvantaged from predominantly rural Appalachia Kentucky areas, with

a critical need for health professionals (EKU HCOP, 2001). These participants were mainly Caucasians. Ninety-three percent of EKU HCOP participants were Caucasian (See Table 2). This distribution reflects the ethnic composition of EKU in general. Caucasians represented approximately 91%-93% of the university population (EKU Online Factbook, 2001). The numbers of other ethnicities reported for the EKU HCOP program, African American and Hispanic, were relatively low. Six African Americans and only one Hispanic participated in the EKU HCOP program. These data are comparable to the data on race at EKU. The data on African Americans at EKU showed from 1995-2000 that they represented 3.96% - 4.45% of the student population. Hispanics represented 0.38% - 0.48% of the student population for the same years. The ethnicities that are reported in Table 2 include only those represented by participants in the HCOP project. There were no Native American or Native Alaskan participants in this HCOP project.

The average high school GPA of EKU HCOP participants' was slightly higher than EKU regular students. The average GPAs were 3.43 and 3.10 respectively. The average ACT score for EKU HCOP students was higher than regular EKU. The average ACT scores were 20.6 and 19.3 respectively (EKU Online Factbook, 2001). All tests involve some measurement error. The standard error of measurement (SEM) for ACT composite scores is 1.0. Because of measurement error, the ACT score can be thought of as a range of scores rather than as a precise point. (ACT, 2002). Taking into account the high school GPA and ACT scores shows that the overall educational development of the EKU HCOP participants and EKU first year students are similar.

TABLE 2

EKU HCOP Participants by Ethnicity

| | Ethnicity | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | African American | | Caucasian | | Hispanic | | Other | | Missing Data | |
| HCOP Year | N | % | N | % | N | % | N | % | N | % |
| 1994 | 2 | 7 | 28 | 93 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 29 | 97 | 0 | 0 | 1 | 3 | 0 | 0 |
| 1996 | 2 | 6 | 30 | 94 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 2 | 7 | 27 | 93 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 25 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 23 | 79 | 1 | 4 | 0 | 0 | 5 | 17 |
| TOTAL | 6 | 3 | 162 | 93 | 1 | 0.5 | 1 | 0.5 | 5 | 3 |

Ninety percent of the EKU HCOP participants enrolled or attended university after completing the HCOP program (See Table 3). Of the 34 males who participated in the HCOP program, 91% enrolled or attended college, which was virtually the same level of participation as for females (90%). Overall 90% of EKU HCOP participants enrolled or attended university. This accomplishes one of the EKU HCOP objectives stated in the grant proposal: "at least 90% of the participants will matriculate from the summer program to their freshman year of college" (EKU HCOP Grant Proposal, 1993, p. 21). When calculated on a year-by-year basis the percentage of participants matriculating for the years 1994, 1995, and 1999 showed a matriculation rate of 90%,

97%, and 100% respectively. The matriculation rate in 1996, 1997, and 1998 was 80%, 76%, and 70% respectively, which was below the specified objective.

TABLE 3

EKU HCOP Participants Enrolled or Attended University

by Gender

| | Gender | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | TOTAL | |
| Group | N | % | N | % | N | % |
| Enrolled/Attended University | 31 | 18 | 127 | 72 | 158 | 90 |
| Did Not Enroll/Attend University | 3 | 2 | 14 | 8 | 17 | 10 |
| TOTAL | 34 | 19 | 141 | 81 | 175 | 100 |

The choice of major was grouped into eight categories: Medicine, Other 'Medicine, Nursing, Behavioral/Mental Health, Public and Allied Health, Health Related Professions, Undecided, and Other. The category ‘other medicine’ includes dentistry, optometry, pharmacy, chiropractor, veterinary medicine, and podiatry. The category ‘other’ includes any major that is not a health-related major. These categories were taken from the DATOR form made available by the Division of Health Profession Diversity. Sixty-five percent of the EKU HCOP participants reported a health-related major. The categories with highest percentages reported are Health Related Professions (25%), Public & Allied Health (26%) and Other (35%)(See Table 4).

TABLE 4

EKU HCOP Participants' Choice of Major

| Major | N | % |
|---|---|---|
| Medicine | 1 | 1 |
| Other Medicine | 1 | 1 |
| Nursing | 20 | 12 |
| Public & Allied Health | 40 | 25 |
| Health Related Professions | 41 | 26 |
| Other | 56 | 35 |
| TOTAL | 159 | 100 |

Data concerning graduation status were collected on 89 (51%) of EKU HCOP participants. Sixty-six percent of the 89 EKU HCOP participants graduated from a program of study (See Table 5). This percentage may be impacted by the fact that EKU offers both four-year and two-year allied health programs. EKU HCOP participants may have graduated from either a two-year program or a four-year program (EKU HCOP Grant Proposal, 1993).

The data on enrollment in post-baccalaureate studies were limited. Data were reported on 11 participants. Three of those participants were reported to have enrolled in post-baccalaureate studies. All three participants were female. One participant's area of concentration was medicine and the other two participants' areas of concentration were in public and allied health.

The lack of data on post-baccalaureate studies may be due to one of many factors such as: the participants were still enrolled in undergraduate studies; the

participants completed a two-year program; the HCOP coordinators were not able to track participants after graduation from an undergraduate program or the participants did not pursue post-baccalaureate studies.

TABLE 5

EKU HCOP Participants who Graduated, Withdrew, Transferred, or Did Not Graduate from a Program of Study

| Status | N | % |
|---|---|---|
| Graduated | 59 | 66 |
| Withdrew | 18 | 20 |
| Transferred | 7 | 8 |
| Did Not Graduate | 5 | 6 |
| TOTAL | 89 | 100 |

The number of EKU HCOP participants who are employed totaled 64 (37%) of the total EKU HCOP participants (See Table 6). Of the 64 employed, 86% of the EKU HCOP participants are employed in a health profession. Seventeen percent of the male participants and 69% of the female participants are employed in a health profession. The category 'health related professions' accounted for more than half the number – 53%, employed in a health profession.

TABLE 6

EKU HCOP Participants by Gender and Career Choice

| | Gender | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | TOTAL | |
| Career Choice | N | % | N | % | N | % |
| Nursing | 2 | 3 | 5 | 8 | 7 | 11 |
| Public & Allied Health | 4 | 6 | 10 | 16 | 14 | 22 |
| Health Related Professions | 5 | 8 | 29 | 45 | 34 | 53 |
| Other | 1 | 2 | 8 | 12 | 9 | 14 |
| TOTAL | 12 | 19 | 52 | 81 | 64 | 100 |

Demographic and Scholastic Characteristics of East Tennessee State University HCOP Participants

East Tennessee State University (ETSU) located in Northeast Tennessee is a state-supported, coeducational institution. ETSU offers two-year, four-year, and graduate programs of study through nine colleges and schools. The student population numbers over 11,000 and serves the Tri Cities Tennessee / Virginia of Southern Appalachia. The campus community is focused on becoming the “university of choice in the region and the best regional university in the nation” (East Tennessee State University, 2001).

The goal of the ETSU HCOP program is to increase the number of disadvantaged students that are “recruited, matriculated, retained and graduated” from the health professions programs in the College of Public and Allied Health at ETSU

(ETSU HCOP Grant Proposal, 1993, p. 38). Participants come from the Southern Appalachian region of Northeast Tennessee, Southwest Virginia, and Western North Carolina. The ETSU HCOP six-week summer component consists of academic enrichment and reinforcement activities that help the participant complete their chosen health profession program. Another element of the summer program is job shadowing in which ETSU HCOP participants participate in a clinical site observation in various health profession specializations (ETSU HCOP, 2000).

From 1995 to 1999 there were 101 participants in the HCOP program. There was no summer program in 1998. Sixty percent of the participants' parents were married, parents had either a high school or less than high school education, the majority of the parents were blue-collar workers and 52% of the families had an income below $40,000. As with the EKU and NVCC HCOP programs, the majority of ETSU HCOP participants (77%) were female (See Table 7). The number of male participants decreased over the four-year period, from a high of 28% to a low of 16%.

The targeted ethnicities for this program were academically and financially disadvantaged Caucasians, Native Americans, African Americans, and Hispanics. Seventy-six percent of the ETSU HCOP participants were Caucasian (See Table 8). The participant population is drawn largely from the southern Appalachian region, which accounts for the large 'disadvantaged Caucasian' participant enrollment. Native Americans increased in number over the four-year period from 4% to 32%. There were marginal increases in African American and Hispanic enrollment. This is the only HCOP project in this study that targeted Native Americans. There were no Native Alaskan participants in this HCOP program.

TABLE 7

ETSU HCOP Participants by HCOP Year and Gender

| | Gender | | | |
|---|---|---|---|---|
| | Male | | Female | |
| HCOP Year | N | % | N | % |
| 1995 | 7 | 28 | 18 | 72 |
| 1996 | 7 | 28 | 18 | 72 |
| 1997 | 6 | 23 | 20 | 77 |
| 1999 | 4 | 16 | 21 | 84 |
| TOTAL | 24 | 24 | 77 | 76 |

ETSU uses both ACT and SAT scores in admission decisions for first-time, first-year, degree-seeking applicants; however the ACT is preferred (ETSU Common Data Set, 2001-2002). Sixty of the 101 participants reported an ACT score, and 14 participants reported only an SAT score. Nine of the 14 SAT scores came from the Native American participants. The composite ACT score of the ETSU first-year students was 21.4 and was slightly higher than the ETSU HCOP participants ACT score of 20.6(ETSU Common Data Set, 2001-2002). As discussed in the EKU HCOP section, the standard error of measurement for composite ACT scores is 1.0. Because of measurement error the ACT score can be thought of as a range of scores rather than as a precise point. (ACT, 2002). Therefore, the ETSU HCOP participants' ACT scores and ETSU first-year students' ACT scores show that both groups overall educational development is about the same.

TABLE 8

ETSU HCOP Participants by Ethnicity

| | Ethnicity | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | African American | | Caucasian | | Hispanic | | Native American | |
| HCOP Year | N | % | N | % | N | % | N | % |
| 1995 | 2 | 8 | 22 | 88 | 0 | 0 | 1 | 4 |
| 1996 | 2 | 8 | 23 | 92 | 0 | 0 | 0 | 0 |
| 1997 | 3 | 11 | 16 | 62 | 1 | 4 | 6 | 23 |
| 1999 | 0 | 0 | 16 | 64 | 1 | 4 | 8 | 32 |
| TOTAL | 7 | 7 | 77 | 76 | 2 | 2 | 15 | 15 |

The average SAT score based on the 14 HCOP participants was 956. There was no average SAT score reported for the ETSU first year students. In the ETSU common data set the SAT scores are reported as the percent of first-time, first-year students with scores in specific score ranges (ETSU Common Data Set, 2001-2002). The average high school GPA of the ETSU HCOP participants was 3.25 on a 4.0 scale and was higher than the ETSU first year students' average GPA of 3.16.

Eighty-five (84%) ETSU HCOP participants provided university enrollment data (See Table 9). Sixteen participants were unaccounted for. Eighty-eight percent of the ETSU HCOP participants matriculated into university or college. Twenty-four percent of participants who enrolled or attended university were males. Sixty-five of the ETSU HCOP participants reported a major. Forty or 62% reported a health-related major (See Table 10). The categories 'undecided' and 'other' show that 25 or 38% of ETSU HCOP

participants chose majors other than a health-related major. These two categories combined account for at least a third of the ETSU HCOP participants.

TABLE 9

ETSU HCOP Participants Enrolled or Attended University by Gender

| | Gender | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | TOTAL | |
| Group | N | % | N | % | N | % |
| Enrolled/Attended University | 20 | 24 | 55 | 64 | 75 | 88 |
| Did Not Enroll/Attend University | 2 | 2 | 8 | 9 | 10 | 12 |
| TOTAL | 22 | 26 | 63 | 74 | 85 | 100 |

TABLE 10

ETSU HCOP Participants' Choice of Major

| Major | N | % |
|---|---|---|
| Medicine | 14 | 21 |
| Nursing | 7 | 11 |
| Public & Allied Health | 16 | 25 |
| Health Related Professions | 3 | 5 |
| Undecided | 4 | 6 |
| Other | 21 | 32 |
| TOTAL | 65 | 100 |

The data on graduation was limited for ETSU HCOP participants. Data were returned on only seven participants, and all seven participants graduated from a program of study. Three male participants and 4 female participants graduated from a program of study. Three graduated from a major in the 'other' category, two graduated from nursing major, one from medicine (pre-medicine), and one from public and allied health. It should be noted that at the time of this study, 41 HCOP participants were reported as newly enrolled or still in school.

Demographic Characteristics of Northern Virginia Community College HCOP Participants

The Northern Virginia Community College (NVCC) system is a network of five campuses – Alexandria, Annandale, Loudoun, Manassas, and Woodbridge – that provides comprehensive educational opportunities for residents of the surrounding areas. There are more than 130 programs of study. There are programs meeting standards for transfer to baccalaureate degree programs in four-year colleges and universities, developmental courses to ensure success in college, and continuing education courses to meet the development needs of business/industry training and retraining (Northern Virginia Community College, 2002).

The NVCC HCOP program was established to provide support and assistance to students who are financially and academically under prepared for the rigors of seven Health Technologies programs offered at NVCC. The Allied Health majors affiliated with HCOP are Dental Hygiene, Emergency Medical Services Technology, Health Information Technology, Medical Laboratory Technology, Physical Therapist Assistant,

Radiography, and Respiratory Therapy (NVCC HCOP, 2002).

NVCC is a two-year institution and the NVCC HCOP does not collect scholastic information such as high school or college GPA or ACT scores and other demographic information, so limited demographic and scholastic data were available for use in this study. Also the data were not reported to the researcher on a year-by-year basis, as with EKU and ETSU, but combined into one cumulative data set.

From 1994 –2000, there were 117 participants who completed the NVCC HCOP program. Twenty-nine or 25% of the NVCC HCOP participants were male and 88 or 75% were female. Across the three institutions, the gender classification shows that more females participated in HCOP programs than males.

The target ethnicities for the NVCC HCOP program are African Americans and Hispanics. Forty-seven percent of the NVCC HCOP participants were African American (See Table 11). The ethnicities reported in Table 11 include only those represented by participants in the program; there were no Native American or Native Alaskan participants. The participants listed in the 'other' category were identified as Asians and were included in the 'other' category because there was no category designated 'Asian' on the data collection instrument. The NVCC HCOP (Table 11) had the most diverse participant populations of the 3 programs. When compared to the institutional data on race at the Annandale campus, Caucasians account for 49% of the student population. African Americans, Hispanics, and Native Americans numbers are 10%, 12%, and 3%. Asians constitute a higher percentage than other minority populations at the Annandale campus – 20%. (NVCC Student Profile, Fall 2001).

TABLE 11

NVCC HCOP Participants by Ethnicity

| | HCOP Years 1994-2000 | |
|---|---|---|
| Ethnicity | N | % |
| African American | 55 | 47 |
| Caucasian | 26 | 22 |
| Hispanic | 15 | 13 |
| Other | 21 | 18 |
| TOTAL | 117 | 100 |

All of the NVCC HCOP participants (117) were enrolled or attended college and all participants reported a health-related major. This may be impacted because NVCC is an open-access, comprehensive community college – if an individual has a high school diploma or equivalent, or is at least 18 years old and able to benefit from enrollment, the individual is eligible for admission to NVCC (Northern Virginia Community College Catalog, 2001-2002). Ninety-four percent (112) identified the category 'health related profession' and the remaining six percent, identified the category 'other medicine' (1),'nursing' (2), and 'public & allied health' (2). This is indicative of the intent of this HCOP program to increase the number of unprepared students, through academic and financial support, that enroll and complete a health technologies program (NVCC HCOP, 2002).

NVCC is a two-year community college, and, as such, it offers two-year Health Technologies programs of study. Participants would have to transfer to a four-year

university to complete a four-year degree. The number of NVCC HCOP participants who are reported graduated or not graduated totaled 117 (See Table 12). Forty-nine percent of the NVCC HCOP participants graduated from a program of study. All of the NVCC HCOP participants who graduated majored in health related professions. The 40 participants categorized as not graduating were actually students who were newly enrolled or still in school.

TABLE 12

NVCC HCOP Participants who Graduated, Withdrew, Transferred, or Did Not Graduate from a Program of Study

| Status | N | % |
|---|---|---|
| Graduated | 57 | 49 |
| Withdrew | 13 | 11 |
| Transferred | 7 | 6 |
| Did Not Graduate | *40 | 34 |
| TOTAL | 117 | 100 |

Note. * Students who at the time of study were newly enrolled or still in school

Tracking of student progress does not stop after the student leaves the institution. Two NVCC HCOP students, at the time of this study, were reported enrolled in graduate or post-baccalaureate studies. Both are enrolled in concentrations that are categorized under public & allied health. Forty-one NVCC HCOP participants reported being employed. Thirty-four females and seven males are employed. Two career choice

categories were reported, health related professions and other. Thirty-nine were employed in a health related profession and two in the other category.

## Answers to Research Questions

The research questions were answered using the combined data from the three selected institutions.

### Research Question 1

The first research question was: Does participation in HCOP result in enrollment in a health profession program?

The number of HCOP participants across the three HCOP programs totaled 393. However, for several categories on the data collection instrument there were incomplete data, as a result the researcher was not able to track every participant from beginning to end. Data were available for 377 participants who enrolled or did not enroll in a university/college (See Table 13). Of those 377 HCOP participants reported, 350 (93%) enrolled in or attended university.

Data relating to choice of major was reported for 335 participants Overall, 265 (77%) of all HCOP participants chose a health-related major. HCOP participants who chose health related majors at EKU, ETSU and NVCC were 97 (63%), 43 (62%), and 117 (100%) respectively. NVCC HCOP participants accounted for 45% of those who chose a health-related major. In summary, 93% of the HCOP participants matriculated into college/university and of those matriculating 77% chose a health-related major.

These results would indicate that HCOP participants are likely to enroll in a health-related major.

TABLE 13

HCOP Participants Enrolled or Not Enrolled in University by Gender

| | Gender | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | TOTAL | |
| Group | N | % | N | % | N | % |
| Enrolled/Attended University | 80 | 20 | 270 | 73 | 350 | 93 |
| Did Not Enroll/Attend University | 5 | 1 | 22 | 6 | 27 | 7 |
| TOTAL | 85 | 21 | 292 | 79 | 377 | 100 |

Research Question 2

The second research question was: Does participation in HCOP result in graduation from a health profession program?

It should be noted that in this study HCOP participants graduated from either a two-year or four-year program. Because NVCC is a two-year college, it is likely that the participants graduated from a two-year program. However, both of the four-year institutions offer two- and four-year programs. The researcher was unable to determine whether participants in the four-year institution graduated from a two-year or four-year program. As with the first research question, the data were incomplete. There were data on 213 HCOP participants relating to graduation status in a program of study.

Graduation rates for EKU (28%) and NVCC (27%) HCOP participants were similar. However there was a significant difference in the graduation rate of ETSU HCOP participants (3%) as compared with EKU and NVCC. Of the 213 reported, 123 or 58% graduated from a program of study (See Table 14). However, when the total number of HCOP participants reported enrolled or attended college (350) is used, the percentage graduating was 35%. The institutional data on graduation rates showed that ETSU and EKU had six-year graduation rates of 37.9 and 34.7, respectively (ETSU Factbook, 2001; EKU Online Factbook, 2001). NVCC's graduation rate was 42.6 (NVCC Factbook, 1996-2000). Overall, HCOP participants in this study graduated above or at the same rate as regular students.

TABLE 14

HCOP Participants who Graduated Withdrew, Transferred, or Did Not Graduate from a Program of Study

| | EKU | | ETSU | | NVCC | | TOTAL | |
|---|---|---|---|---|---|---|---|---|
| Status | N | % | N | % | N | % | N | % |
| Graduated | 59 | 28 | 7 | 3 | 57 | 27 | 123 | 58 |
| Withdrew | 18 | 9 | 5 | 2 | 13 | 6 | 31 | 15 |
| Transferred | 7 | 3 | - | - | 7 | 3 | 31 | 6 |
| Did Not Graduate | 5 | 2 | *41 | 19 | *40 | 19 | 14 | 21 |
| TOTAL | 89 | 42 | 53 | 24 | 117 | 55 | 213 | 100 |

Note. *ETSU and NVCC HCOP participants reported newly enrolled or still in school

Of the 123 who graduated from a program of study, 108 (87%) graduated from a

health profession program (See Table 15). Health related professions category had the highest number of graduates. These graduates came from the EKU and NVCC HCOP programs. Eighty-two (67%) graduated from a health related professions major.

TABLE 15

HCOP Participants who Graduated and Choice of Major

| | EKU | | ETSU | | NVCC | | TOTAL | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Medicine | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Nursing | 7 | 6 | 2 | 2 | 0 | 0 | 9 | 7 |
| Public & Allied Health | 15 | 12 | 1 | 1 | 0 | 0 | 16 | 13 |
| Health Related Professions | 25 | 20 | 0 | 0 | 57 | 46 | 82 | 67 |
| Other | 12 | 10 | 3 | 2 | 0 | 0 | 15 | 12 |
| TOTAL | 59 | 48 | 7 | 6 | 57 | 46 | 123 | 100 |

Research Question 3

The third research question was: Does participation in HCOP result in enrollment in post-baccalaureate health profession program?

Unfortunately, this question cannot adequately be answered with the data that were reported. There were only 8 HCOP participants enrolled in post-baccalaureate studies of the 11 participants for whom data was reported. This could mean that only 8

participants are enrolled in post-baccalaureate studies or it could indicate that they are the only students who have reported being enrolled in post-baccalaureate studies.

Using the data available would indicate that 4% of the HCOP students who graduated from an undergraduate program are enrolled in post-baccalaureate studies. Three of the participants were from EKU, three from ETSU, and two from NVCC. Seven of the eight HCOP participants' concentrations were in a health profession – medicine, other medicine, and public & allied health.

A factor that contributed to the incomplete data on post-baccalaureate enrollment is that some HCOP participants, such as those who completed the HCOP summer program in years 1998 and 1999, may not have finished undergraduate studies. For the ETSU HCOP, there were 46 (45%) who completed the HCOP summer program in the years 1998 and 1999. Forty-one of these participants were at the time of this study classified as newly enrolled or still in school. For the EKU HCOP, the total number of participants in the years 1998 and 1999 were 56 (32%). For the NVCC HCOP, 40 (34%) at the time of this study were newly enrolled or still in school.

In summary, the data reported were inadequate to answer the research question as to whether participation in a HCOP program results in enrollment in a post-baccalaureate health profession program.

Research Question 4

The fourth research question was: Does participation in HCOP result in employment in a health profession?

Data related to graduation status were reported on 213 HCOP participants. One

hundred twenty-three (58%) graduated from a program of study with 107 (87%) graduating from a health-related major. A total of 110 (52%) HCOP participants were reported as employed. Of those reported employed, 96 (87%) were employed in a health profession. The health profession categories identified were nursing (8), public and allied health (15), and the health related professions (73). The results indicate that HCOP participants are likely to be employed in a health profession.

Overall, each HCOP program provided preliminary education that facilitated the entry of most of the HCOP participants (93%) into a program of study. The individual enrollment rates for EKU, ETSU, and NVCC were 90%, 88%, and 100%. The retention of students in a program of study through graduation showed that overall HCOP participants graduated at higher rate (58%) than the institutional graduation rates – 37.9 (ETSU), 34.7 (EKU), and 42.6 (NVCC). However, the individual graduation rates for EKU (28%) and NVCC (27%) showed that HCOP participants graduated below regular students at their specific institution. ETSU graduation rate was 3%, well below the ETSU regular students' graduation rate of 37.9%. These results show that some element of the HCOP program may impact the retention of HCOP participants from entry into a program through to graduation. These elements are discussed in research question five.

Research Question 5

The fifth research question was: Does a specific combination of program elements (recruitment, preliminary education, facilitating entry, retention, and financial aid dissemination) determine the level of success for selected HCOP programs?

The purpose of the HCOP program is to develop a more competitive applicant pool in order to create more diversity in the health and allied health professions. The HCOP program's goal is to help students from disadvantaged backgrounds obtain the required educational preparation they need to be admitted and graduate from health & allied health professions schools. In order to meet this goal, the HCOP projects must conduct activities related to the HCOP Program's Legislative Purposes. Prior to I998, there were five legislative purposes that HCOP projects were required to address. HCOP projects to be eligible for funding needed to address two or more of these purposes. These are the legislative purposes that are addressed by this study.

Currently, new HCOP projects are required to address all seven HCOP program purposes – recruitment; facilitating entry; counseling, mentoring, and other services; preliminary education and health research training; financial aid dissemination; primary care exposure activities and the development of a more competitive applicant pool. Primary care exposure activities and development of a more competitive applicant pool are the additional HCOP program purposes.

The primary care exposure activities involve individuals' gaining experience in primary care health by working at health care facilities. The development of a more competitive applicant pool involves conducting activities to develop a larger more competitive applicant pool through partnerships with institutions of higher education, school districts, and other community-based organizations. Another modification to the requirements is that the applicants are encouraged to take a more comprehensive approach to efforts of reaching a wider range of educational levels. The researcher

regards these changes as an indicator that the activities of the former set of HCOP purposes and goals of the HCOP program may have not adequately addressed the need to develop a more competitive applicant pool and the numbers of disadvantaged students matriculating into health programs. It shows that a program must evolve and adapt in order to continue to be effective.

HCOP Legislative Purposes

For this section the researcher summarized program information from the legislative purposes instrument and then addressed the activities implemented by each HCOP associated with each legislative purpose. The EKU HCOP program started in 1994 and is currently in operation. To date, 232 students have completed the program, for this study only the students who completed the program between 1990 and 1999 were included, hence the total was 175. The EKU HCOP program addressed all five of the HCOP legislative purposes (Appendix E). The results showed that 59 (37%) of the 158 who enrolled in a program of study graduated. Of those that graduated, 47 graduated from a health related program.

The ETSU HCOP program started in 1994 and completed its final summer program in 2000. The number of participants who completed the program in the specified timeframe was 101. The ETSU HCOP program addressed all five of the HCOP legislative purposes (Appendix E). Results showed that 75 participants enrolled in university (no data reported on 16 participants). There were data on 7 participants regarding graduation from a program of study. Four of the seven graduated from a health related program. Five students withdrew and 41 are categorized as newly

enrolled or still in school. There was great difficulty in following up or locating several former HCOP participants to determine current status – due to no response to survey request for updated information or individual no longer at the address on file.

The NVCC HCOP program operated from 1994 to 2000. The NVCC Health Technologies Division was recently awarded $1.5 million to implement a comprehensive HCOP grant over the next five years – 2001 to 2006. The NVCC HCOP program addressed all five of the HCOP legislative purposes. The results of the study showed that all 117 NVCC HCOP participants enrolled in college and that all were in a health related major. Fifty-seven or 49% graduated and 40 participants, at the time of study were newly enrolled or still in school. All 57 graduates were enrolled in a health related program.

The preceding information indicated that the three HCOP programs addressed all five of the HCOP legislative purposes. However, the outcome for each program was varied. Because each program addressed each legislative purpose, it may be that the activities associated with each legislative purpose have some impact on the success of the program.

In the next section the activities associated with each legislative purpose are summarized (See Tables 16, 17, & 18) for each institution. Comparison on the types of activities or strategies used may provide pertinent information on the success of the program. Recruitment strategies for all three institutions are similar. The goal of recruitment is to recruit a pre-determined number of participants for each summer program. This was accomplished through activities such as personal visits with potential participants and parents, visits to area high schools to promote the program, and the

help of community groups as a source to recruit potential participants. Other recruitment tools used were HCOP brochures and pamphlets, the HCOP websites, the local newspapers and television.

Preliminary education activities showed similarities the academic portions of the program. There were differences in duration of program and whether it was a residential or nonresidential program. EKU and ETSU had a six-week residential program. Students lived on-campus in university dormitories during the six-week period. NVCC summer program length was 8 weeks and it was a nonresidential program, participants commuted to the campus during the summer program.

EKU's six-week Summer Transition and Enrichment Program (STEP) was designed to help students prepare for the transition from high school to college. The program offers academic courses in reading, writing, and, math and basic courses in chemistry and anatomy. During this time counseling, financial aid assistance and campus orientation is also offered (EKU HCOP Grant Proposal, 1993). ETSU six-week program and NVCC eight-week program offered similar academic courses. One component of the ETSU program that was unique was the job shadowing experiences. During the last three-weeks of the program ETSU HCOP participants participated in a clinical site observation in various health profession specializations. This exposure is designed to enhance the ability of the participant to relate program studies to activities at the clinical site (ETSU HCOP Grant Proposal, 1993). This component is now included in the current HCOP purposes - the primary care exposure activities to involve participants in primary health care by working at health care facilities (HCOP Application and Instructions, 2001). During the final week of the program NVCC participants

participated in service learning. Participants were observed individuals in health professions that they were interested in.

Facilitating the entry of HCOP participants into health profession programs used various activities. ETSU used skill building seminars or workshops on skills that would ease transition from high school to college and the job shadowing component enhanced the students ability to understand the relationship between clinical and classroom activities. EKU used a program called plus program to facilitate entry of HCOP participants. The plus program is a mentoring program in which HCOP participants are matched with a former HCOP participant or HCOP faculty member to assist in the transition from high school to college (EKU HCOP, 2001).

High attrition rates after matriculation caused underrepresentation of minority or disadvantaged students in health professions training (Davis, 1995). Retention activities included support services while the student was enrolled at the institutions through academic and personal counseling, professional academic tutoring, and peer tutoring. At ETSU a mentoring program was established for Native Americans and African Americans. EKU offered a form of specialized supplemental instruction (SI) and is a central component of EKU HCOP. The SI program focused on the 'at-risk' or 'gatekeeper' courses and provided assistance to students enrolled in those courses.

Gatekeeper courses are the required courses that many students at EKU who major in an allied health program experience have difficulty with due to lack of preparation in math and science. The SI program focuses attention on the gatekeeper courses and offers assistance to those students enrolled in them (EKU HCOP Grant Proposal, 1993). SI is a central component of the EKU HCOP.

TABLE 16

Summary of EKU HCOP Activities Associated with the

HCOP Legislative Purposes

| Legislative Purpose | Activities That Incorporate Legislative Purpose |
|---|---|
| Recruitment | Thirty students will be recruited each year of the project through contacts with high schools, vocational schools, and community groups, including Area Health Education Centers (AHEC). Activities include written correspondence, brochures, personal visits, and telephone calls. |
| Preliminary Education | HCOP participants will successfully complete the STEP program. A comprehensive assessment will be conducted of academic status in the four component areas – chemistry, anatomy and physiology, reading, writing, and study skills, and mathematics - as well as study habits, attitudes, and motivations - through pre- and posttests and various learning inventories |
| Facilitating Entry | The plus program is a mentoring program in which HCOP participants are matched with a former HCOP participant or HCOP faculty member to assist in the transition from high school to college. |
| Retention | Counseling services will be provided for EKU HCOP participants during the STEP phase as well as during the enrollment in a program of study.<br>Supplemental instruction (SI) provided for learning assistance to students enrolled in “gatekeeper” courses. It will be offered to all HCOP participants during the first four semesters of their college experience. |
| Dissemination of Financial Aid Information | Coordinate all financial assistance activities with EKU’s student financial assistance office.<br>Disseminate financial assistance information available to persons enrolled in public and allied health majors.<br>Provide assistance to participants and parents with financial aid applications.<br>Conduct intense search for financial resources using online databases. |

TABLE 17

Summary of ETSU HCOP Activities Associated with the

HCOP Legislative Purposes

| Legislative Purpose | Activities that incorporate legislative purpose |
|---|---|
| Recruitment | Identify 100 disadvantaged junior or senior high school students within targeted service area, twenty-five selected to participate. Activities include the use of brochures, advertisements in local newspapers of service areas, visits to high schools, and personal visits. |
| Preliminary Education | Improve the writing, computation, and science knowledge through six-week summer enrichment program and expose students to various health professions through job shadowing experiences. |
| Facilitating Entry | Skill building seminars or workshops focus on interpersonal and career skills that will ease transition from high school to first year of college.<br>Exposure to health care facilities through job shadowing will enhance students' ability to understand the relationship between clinical and classroom activities. |
| Retention | Provide support services that will help ensure that students are retained in their respective program of study.<br>The activities to accomplish this include;<br>1. Admission, academic, and personal counseling activities - include small group sessions, meeting with advisors, simulated admissions interviews, and meetings with HCOP staff and ETSU Counseling Center to review students' performance.<br>2. Professional tutoring offered through the Division of Developmental Studies at ETSU on an as-needed basis.<br>3. Peer tutoring involves the use of upper-class HCOP students in good academic standing to assist newly enrolled HCOP students on an as-needed basis.<br>4. A mentoring program will be established for American Indians and African American students. |
| Dissemination of Financial Aid Information | Workshop with a representative of the ETSU Financial Aid office to determine financial aid available to HCOP students.<br>Assistance in acquiring housing prior to the first semester of freshman year. |

TABLE 18

Summary of NVCC HCOP Activities Associated with the

HCOP Legislative Purposes

| Legislative Purpose | Activities That Incorporate Legislative Purpose |
|---|---|
| Recruitment | Twenty-five students who are interested in enrolling in one of the seven health technologies will be recruited each year of the project through contacts with high schools, Career fairs, College tours, etc. College tours include demonstrations at various NVCC technology labs. |
| Preliminary Education | English, math, and science are the core courses offered and a pre- and posttest is administered for each course. Other courses include first aid, cultural competence course, medical terminology, and Spanish medical terminology. Field trips to National Institutes of Health, the Walter Reed Army Medical Center, in Silver Springs, Maryland. Students participate in Service Learning through the observation of a health career of interest. |
| Facilitating Entry | Assist participants in completing summer component in post secondary educational training instruction to pursue a career in one of the seven target allied health disciplines. Health Technologies information sessions conducted for a detailed explanation of the curriculum, clinical requirements, cost, and time constraints associated with enrollment in the program. |
| Retention | Bi-semester progress reports are sent to instructors to solicit feedback on participant progress and individual conferences are schedules throughout the semester. Recognition and award nominations for outstanding participants during the year. |
| Dissemination of Financial Aid Information | Students are provided with a minimum of two hours of financial information during the summer program. An awareness seminar is provided campus-wide to discuss financial aid scholarships and provide assistance with essay writing. HCOP personnel assist HCOP students with essay writing and scholarship application completion. |

Dissemination of financial aid information activities included workshops and seminars with the institution's financial aid office representative, providing direct assistance to participants in filling out financial aid applications, and determining the financial resources available to students. All of the institutions had similar activities.

## Summary

The chapter presented the analysis of research data obtained from the data collection instrument. The data were obtained from the HCOP participants' records at the three selected institutions. The data reported on the data collection instrument were used to answer the five research questions. HCOP students who participated in the HCOP programs at EKU, ETSU, and NVCC were likely to enroll and graduate from a health-related program and be employed in a health profession. There were insufficient data to accurately answer the research question on enrollment in post-baccalaureate studies. The specific activities to implemented by the HCOP projects to address the HCOP purposes were similar. The areas of similarity were in activities related to recruitment, some aspects of preliminary entry, and dissemination of financial aid information. The areas that had activities worth noting were activities related to facilitating entry and retention.

# CHAPTER 5

# SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

One of the Healthy People 2010 goals is to "increase the proportion of degrees awarded to members of underrepresented racial and ethnic groups in the health professions, allied and associated health profession fields, and the nursing field" (U.S. Department of Health and Human Services, 2000, p.19). Currently, minorities constitute 25% of the U.S. population, but only about 10% work as health professionals (Strayhorn, 2000). Mario Manecci, acting director of the Division of Health Profession Diversity of the Bureau of Health Professions, Health Resources and Services Administration stated, "If we can recruit from areas that are underrepresented, hopefully those (health professionals) will return and provide services to that population" (cited in Hellinghausen, 2000, p.1).

According to the Health Resources and Services Administration, the purpose of HCOP: "is to build diversity on the health fields by providing students from disadvantaged backgrounds opportunities to develop skills needed to compete, enter and graduate from health professions schools" (Health Resources and Services Administration, 1998, p. 1). In light of these statements, it was the purpose of this study to evaluate three HCOP programs to determine, describe, and assess the overall effectiveness and identify successful strategies used by these projects to reach their specific objectives.

## Summary of Findings

For this study, data were collected through instruments distributed to the HCOP coordinator at the three participating institutions: Eastern Kentucky University, East Tennessee State University, and Northern Virginia community College. Data were collected about 393 HCOP participants who participated in these selected projects during the years 1990-1999. The data collection instrument was used to gather demographic and scholastic information on HCOP participants. The HCOP legislative purposes instrument was used to collect information about the legislative purposes used by each project. Detailed information about the activities used to incorporate the legislative purposes into the HCOP program was also collected. Summative information on each variable was obtained through the use of basic descriptive statistics.

Sixty-seven percent of HCOP participants were Caucasian, and 78% were female. Although, HCOP is open to persons from minority and disadvantaged backgrounds, national data shows that minorities makeup the majority of individuals who participate in HCOP programs, and other groups such as disadvantage whites, Asians, and older students are slipping through the cracks (HCOP Final Report, 1994; Lee, 1992). The difference in this study is because two of these programs (EKU and ETSU) draw students from areas with predominantly Caucasian populations.

Scholastic data were limited to data from the EKU and ETSU HCOP programs. NVCC is an open access community college and scholastic data such as high school GPA and SAT or ACT scores are not part of the criteria used for admission to the institution; therefore, the NVCC HCOP does not collect scholastic data on its participants. The average high school GPA score for HCOP participants in this study

was 3.34. The average ACT score was 20.6. When compared with institutional data, HCOP students had a higher GPA than the regular first-year college students at the specific institutions. The collective ACT scores showed that the HCOP and regular students had scores, taking in account the standard error of measurement, that were similar.

Of the 350 HCOP participants who enrolled or attended college after the completion of the HCOP program, 77% chose a health-related major. ETSU HCOP enrolled 88% of the HCOP participants in higher education. EKU HCOP and NVCC HCOP enrolled 90% and 100% respectively of their HCOP participants in a program of study. Admissions requirements and policies may have had an impact on such high enrollments. EKU has an open-admissions policy, which means that any Kentucky resident who has a high school diploma or its equivalent may enroll upon completion of the application process. Also EKU HCOP participants during the HCOP application process, are “strongly encouraged” to plan on attending EKU in the semester following participation in the HCOP program (EKU HCOP Grant Proposal, 1993). NVCC is an open-access, comprehensive community college. Any resident who has a high school diploma or equivalent, or if the individual is at least 18 years old and will benefit from enrollment that individual is eligible for admission to NVCC. For certain health technology programs a prospective student must meet special requirements. The NVCC HCOP program is used as a means to prepare students for entry into any of the seven health technology programs (NVCC HCOP, 2002).

ETSU HCOP participants are encouraged students to enroll at ETSU on completion of the HCOP program. ETSU admissions policy differs from EKU and

NVCC. The information contained in the ETSU Common Data Set (2001-2002) showed that certain academic and nonacademic factors are considered in making admission decisions and are ranked as very important, important, considered, and not considered. Secondary school record, standardized test scores are considered very important, character or personal qualities are ranked as important, and minority status is considered in making admission decisions.

At the time of this study, 123 (58%) HCOP participants graduated from a program of study and of those who graduated, 107 (87%) were from a health profession program. Collectively, HCOP participants graduated above the rate of regular students at their respective institutions. Some HCOP participants, such as those who completed the HCOP summer program in years 1998 and 1999, may not have completed undergraduate studies at the three institutions and thereby contribute to incomplete data. For the ETSU HCOP, there were 46 (45%) who completed the HCOP summer program in the years 1998 and 1999. Forty-one of these participants were at the time of this study classified as newly enrolled or still in school. For the EKU HCOP, the total number of participants in the years 1998 and 1999 was 56 (32%). For the NVCC HCOP, 40 (34%) at the time of this study were newly enrolled or still in school.

Only 4% of HCOP participants were enrolled in post-baccalaureate studies. Several factors can affect the number of HCOP participants reported in post-baccalaureate studies. One is the inability to track students after completion of undergraduate studies. This could be due to the former HCOP participant's changing address or failing to respond to requests for updated information on status. Another factor is that some HCOP participants, such as those who completed the HCOP

summer program in years 1998 and 1999, may not have completed undergraduate studies.

In this study, 87% of the HCOP participants employed were employed in a health profession. This shows that if minority and disadvantaged students are targeted and guided along the health profession pipeline in programs like these described here, then, there will be likely increases in the numbers of minority and disadvantaged populations in the health professions workforce. The HCOP program offers a viable solution to increasing the number of disadvantaged populations in the health workforce.

## Conclusions

Students who participated in these three HCOP programs were likely to enroll and graduate from a health related major and become employed in a health profession. There were insufficient data on enrollment in post-baccalaureate studies to determine if participation led to post-baccalaureate work in a health profession. These HCOP programs are successful in facilitating the enrollment of students (93%), in particular, enrollment into health profession programs (77%).

Academic underpreparation is cited in the literature as one the barriers to disadvantaged groups enrolling in and completing a course of study (Goodell et al, 1999; Gonzales, 1999; McKendall et al., 2000). It is important to make disadvantaged groups aware of the various health career opportunities before they finish high school and that the possibilities of a career in the health professions is something that is attainable. Kamat (1999) stated that math and science in high school are a foundation for individuals who aspire to become health professionals; however, the types of math

and science courses taken by disadvantaged populations differ from courses taken by Whites and Asians. According to Kamat (1999), Whites and Asians take trigonometry, while Blacks and Hispanics are more likely to take remedial math. The academic portion of the HCOP program provided instructional help in core subjects (math, English, and science) that are needed for individuals who are planning to pursue health career. EKU's HCOP SI program targeted "gatekeeper" courses that are required by EKU students who major in allied health program that are difficult to get pass due to deficiencies in math and science.

The specific activities associated with the legislative purposes recruitment, preliminary education, and facilitating entry were successful strategies for the HCOP projects as is evidenced by the high enrollment rates of HCOP participants in higher education. The job shadowing (ETSU HCOP) and service learning (NVCC HCOP) components were designed to expose participants to health professions and the realities of what is required to become health professionals.

In order for the numbers of disadvantaged students in higher education to grow, programs must integrate specific strategies for success. These strategies include "institutional commitment, increased faculty involvement, increased financial aid and strong mentoring programs" (Mack, 1999, p. 73). He also stated, "A strong mentoring program may be a critical component of any recruitment and retention effort made by the institution" (p.71). The activities around retention for the programs in this study centered included academic and personal counseling, professional and peer tutoring. The strategies used by EKU HCOP in retention efforts seemed to have an impact on student persistence - they had the highest percentage of graduates (66%). EKU's

mentoring program – plus program – was designed to match HCOP participants with former HCOP participants or HCOP faculty. Bauman (1992) stated that “The continual influence of key individuals – such as parents, siblings, teachers and mentors – is necessary to initiate and preserve momentum along the path” (p. 23). Mentoring and advising play an integral part in retaining disadvantaged student and have a major impact on their academic success.

An effective pre-baccalaureate HCOP program is one that establishes linkages with local schools and community health organizations and uses a variety of recruitment methods – electronic, local media, career fairs etc. Another component of an effective program is one that offers core subjects (math, English and science) to enhance the participants’ academic profiles. Other components of an effective HCOP program are instruction in test–taking strategies and the development interpersonal career skills. A successful HCOP program includes a job shadowing or service learning component to give participants a “hands-on” experience of what actually is involved in becoming a health professional. In an effective program, specific strategies should be formulated to individualize retention efforts to prevent or minimize attrition rates among participants. Also information about sources of funding through financial aid and scholarships should be made available to participants.

## Recommendations for HCOP Programs

The HCOP program provides a vital link to bridging the gap between underrepresentation of disadvantaged populations in health professions and reaching parity in representation. The researcher, based on the literature and the results of this

study, offers the following recommendations:

1. Collectively HCOP participants in this study graduated at a rate higher than regular students at their respective institutions; however, efforts still need to be made toward retention activities. Retention activities should be more individualized to the needs of the participants. While each HCOP program presented general strategies for retaining students, such as academic counseling and tutoring services, these efforts can be improved upon. NVCC HCOP use of bi-semester progress reports and student recognition activities are effective techniques that support student retention. The EKU HCOP presented other specialized techniques, the plus program and the SI program. Providing support through one-on-one mentoring and individualized instruction demonstrates to the HCOP participants that they are valuable and that a health profession is within reach.

2. Efficient data management is essential in determining the impact of HCOP. The BHPR has developed a standardized data collection mechanism, the DATOR form, which is a part of the annual progress report. Limited demographic data (gender and ethnicity) and information about student progress is reported on this form. The development of a uniform participant profile form would allow each HCOP to have a common data collection instrument and expanded data (scholastic information, pre- and posttest scores, family characteristics, etc) on participants. Uniformity on data would allow for accurate comparisons across institutions.

3. HCOP grantee institutions should be more welcoming and supportive of evaluative studies. Evaluative studies provide valuable data needed to assess the overall impact of an intervention. HCOP grantees can see what works with other

programs that they can implement into their own. HCOP grantees should view evaluation as a useful tool for refining or reassessing program components and not as a means to label a program as ineffective or unsuccessful.

4. HCOP grantees need to publish more about their programs and the impact that they have made. The literature on the HCOP program and its impact is very limited. Weppner, Bowman, and Balsley (1999) reviewed the literature from the years 1976 to 1998 for studies of health career training programs for high school minority and disadvantaged students and found only 35 published articles. The literature that is available deals mostly with programs that are gearing participants to enter medical school. Research on the progress of allied and public health schools that have projects funded through HCOP needs more representation. Each HCOP project seems to work in a vacuum. The creation of a website for HCOP grantees would provide a means for interested persons to glean information about other HCOP projects that are currently funded. Sharing of successful strategies at yearly Director's Meetings is a method of getting that information out to other HCOP projects or the development of a program similar to the TRIO Dissemination Partnership program. This program is used to encourage replication or adaptation of successful practices of TRIO projects at institutions that do not have TRIO grants (TRIO Dissemination Partnership Program, 2001).

5. The current national HCOP website provides general information about HCOP program but does not provide statistics relating HCOP overall impact. A user-friendly system for obtaining information about the HCOP program, specifically national data on the HCOP program, needs to be put in place.

## Recommendations for Further Research

From the results and conclusions of the analysis of data obtained through this study, the following recommendations for research were formulated.

1. In this study, participation by males (22%) was very low in comparison to females (78%). Also the institutional enrollment data showed that female enrollment outnumbered male enrollment (EKU Online Factbook, 2001; ETSU Factbook, 2001; NVCC Factbook, 1996-2000). In the HCOP Final Report (1994) it was stated that HCOP has become an important avenue used by women from disadvantaged groups to pursue health careers. The HCOP program is for the benefit of all persons in minority or disadvantaged groups; however, if it is not being used by a particular group then the desired outcome is not achieved. Further studies could look at what factors influence or deter male participation in programs of this type; what changes need to be made to the program to attract males; whether other factors are influencing males to choose careers outside of the health field.

2. Future studies could look at the differences in types of institutions that support a HCOP project. In this study there were two public four-year institutions and one was a public two-year community college. Characteristics of each institution (residential or non-residential program) may affect the overall impact of the program. Data obtained from a variety of institutions (ethnicity targeted, type of institution, private or public) would give a better picture of the impact of the HCOP program and the challenges encountered by the programs.

3. To provide insight into the impact of HCOP, longitudinal studies should be conducted, in which HCOP participants are followed as they progress through the

health profession educational pipeline. Carline, Patterson, Davis, et al. (1998) found that few evaluations of intervention programs measured actual academic progress of students, where participants were followed longitudinally through the health profession pipeline. More longitudinal studies should be conducted to obtain data on immediate effects and long-term outcomes of the HCOP program. As a result, participants can also provide anecdotal data on the impact, if any, of participation in HCOP on current educational or employment status and the reasons that influence HCOP participants to pursue or not pursue a career in the health professions.

# REFERENCES


ACT (2002). Understanding your scores. Retrieved March 6, 2002, from http://www.act.org/aap/scores/under.html

Acker, A.L., Freeman, J.D., & Williams, D.M. (1988). A medical school fellowship program for minority high school students. *Journal of Medical Education, 63*, 171-175.

Atkinson, D.D., Spratley, E., & Simpson, C.E. (1994). Increasing the pool of qualified minority medical school applicants: Premedical training at historically black colleges and universities. *Public Health Reports, 109,* 77-85.

Bauman, R. (1992). Minority students and the health professions: The organizational changes required to attract and retain them. *Equity & Excellence, 25*, 22-30.

Bediako, M.R., McDermott, B.A., Bleich, M.E., & Colliver, J.A. (1996). Ventures in education: A pipeline to medical education for minority and economically disadvantaged students. *Academic Medicine*, *71,* 190-195.

Billings, L. (1999). Access to health care services. In A.R. Kovner & S. Jonas (Eds.), *Health care delivery in the United States* (pp.401-438). New York: Springer.

Bock, S. (1996). Program fosters young students' pursuit of health sciences careers. *Rural Health FYI, 18,* 16-17.

Borg, W.R., & Gall, M.D. (1989). *Educational research: An introduction* (5th ed.). New York: Longman.

Cantor, J.C., Miles, E.L., Baker, L.C., & Barker, D.C. (1996). Physician service to the underserved: Implications for affirmative action in medical education. *Inquiry, 33,* 167-180.

Carline, J.D., Patterson, D.G., & Davis, L.A. (1998). Enrichment programs for undergraduate college students intended to increase the representation of minorities in medicine. *Academic Medicine, 74,* 299-312.

Carline, J.D., Patterson, D.G., Davis, L.A., & Irby, D.M. (1998). Precollege enrichment programs intended to increase the representation of minorities in medicine. *Academic Medicine, 73,* 288-298.

Carlisle, D.M., Gardner, J. E., & Liu, H. (1998). The entry of underrepresented minority students into US medical schools: An evaluation of recent trends. *American Journal of Public Health, 88,* 1314-1318.

Coffman, J., Rosenoff, E., & Grumbach, K. (2001). Racial/ethnic disparities in nursing. *Health Affairs, 20*, 263-272.

Cohen, J.J. (1998). Time to shatter the glass ceiling for minority faculty. *The Journal of the American Medical Association, 280,* 821-822.

Council of Graduate Medical Education. (1992). *Summary of third report: Improving access to health care through physician workforce reform: Directions for the 21st century.* Department of Health and Human Services, Human Resources Services and Administration. Retrieved November 6, 2000, from http://www.cogme.gov/rpt3.htm

Cummins, J. (1986). Empowering minority students: A framework for intervention. *Harvard Educational Review, 56*,18-36.

Davis, J.A., & Davidson, C.P. (1982). The Med-COR study: Preparing high school students for health careers. *Journal of Medical Education, 57,* 27-34.

Davis, L. (1995, July). The future of minorities in public health. *Black Issues in Higher*

*Education, 12*, 61-62.

EKU HCOP. (2001). Retrieved January 22, 2002, from Eastern Kentucky University Web site: http://www.hcop.eku.edu

EKU HCOP Grant Proposal. (1993). Eastern Kentucky University, Richmond, Kentucky.

EKU Online Factbook. (2001). Retrieved January 22, 2002, from Eastern Kentucky University Web site: http://www.ir.eku.edu/Factbook-WWW/History.htm

East Tennessee State University. (2001). Office of the President. Retrieved April 14, 2001, from East Tennessee State University Web site: http://www.etsu.edu/president/

ETSU Common Data Set. (2001-2002). Office of Institutional Effectiveness & Planning. Retrieved January 22, 2002, from East Tennessee State University Web site: http://www.etsu.edu/iep/CDS/01cdstoc.htm

ETSU Factbook. (2001). Office of Institutional Effectiveness & Planning. Retrieved January 22, 2002, from East Tennessee State University Web site: http://www.etsu.edu/iep/01FB/01vi1.htm

ETSU HCOP. (2000). Retrieved April 14, 2001, from East Tennessee State University Web site: http://www.etsu.edu/hcop/

ETSU HCOP Grant Proposal. (1993). East Tennessee State University, Johnson City, Tennessee.

Fenske, R.H., Geranios, C.A., Keller, J.E., & Moore, D.E. (1997). *Early intervention programs: Opening the door to higher education*. (ERIC Digest ED 412 862)

Gonzales, C.Q. (1999). Achieving high-quality health care and access for all. *Academic Medicine, 74,* 305-307.

Goodell, E., Visco, R., & Pollock, P. (1999). A program to enhance K-12 science education in ten rural New York school districts. *Academic Medicine, 74,* 332-335.

Greene, B. (1995). Programs at higher education institutions for disadvantaged precollege students. *National Center for Education Statistics*. Retrieved May 15, 2000, from http://nces.ed.gov/pubs/96230.html

Greene, J. (1998). Pew: Encourage minority physicians. *American Medical News, 41*, 12-13.

Gunby, P. (1978). It's back to white coats for Houston high schoolers. *Journal of the American Medical Association, 240,* 1323-1325.

Gupta, G.C., & Konrad, T.R. (1992). Allied health education in rural health professional shortage area of the United States. *The Journal of the American Medical Association, 268,* 1127–1130.

Hatcher, L., & Stepanski, E.J. (1994). *A step-by-step approach to using the SAS® system for univariate and multivariate statistics.* Cary, NC: SAS Institute.

Haught, P.A. (1996). *Impact of intervention on disadvantaged first year students who plan to major in health sciences.* Paper presented at the Annual Meeting of the American Educational Research Association, April 11, 1996. (ERIC Document Reproduction Service ED 394 468)

HCOP Application and Instructions. (2001, July 6). Health Resources and Services Administration. Retrieved on February 25, 2002, from Bureau of Health Professions Web site: http://bhpr.hrsa.gov/grants2002/applications/hcop.htm

HCOP Final Report. (1994). Bureau of Health Professions. Division of Disadvantaged

Assistance. Rockville, MD: Department of Health & Human Services.

Health Careers Opportunity Program Definitions (2000). Retrieved May 15, 2000, from Bureau of Health Professions Web site: http://bhpr.hrsa.gov/diversity/definitions.htm#hcop

Health Careers Opportunity Program. (2000). Bureau of Health Professions. Retrieved November 26, 2000, from http://bhpr.hrsa.gov/diversity/hcop/default.htm

Health Professions Education Partnerships Act of 1998. *Educational assistance in the health professions regarding individuals from disadvantaged backgrounds* (Public Law 105-392). Washington, DC: U.S. Government Printing Office.

Health Resources and Services Administration Fact Sheet. (1998). Office of Communication. Retrieved September 23, 1999, from http://www.newsroom.hrsa.gov/factsheets.htm

Health Workforce Newslink (Spring 1995). Health Resources and Services Administration. Retrieved November 10, 1999, from http://bhpr.hrsa.gov/healthworkforce/newslink.htm

Health Workforce Newslink (Spring 1999). Health Resources and Services Administration. Retrieved November 10, 1999, from http://bhpr.hrsa.gov/healthworkforce/newslink.htm

Hellinghausen, M.A. (2000, March 13). Closing the Gap: Program aims to add more minorities to health care professions. *NurseWeek*. Retrieved April, 12, 2002, from http://www.nurseweek.com/features/00.03/vision.html

Helm, E.G., Parker, J.E., & Russell, C. (1999). Education and career paths of LSU's summer science program students from 1985 to 1997. *Academic Medicine, 74,*

336-338.

Hesser, A., Cregler, L.L., & Lewis, L. (1998). Predicting the admission into medical school of African American college students who have participated in summer academic enrichment programs. *Academic Medicine, 73,* 187-191.

Hittleman, D.R., & Simon, A.J. (1992). *Interpreting educational research: An introduction for consumers of research*. New York: Macmillan.

Hoyte, A. (1995). *Final report on research on minority/disadvantaged support programs.* Washington, DC: Georgetown University School of Medicine.

Jackson, E.W., & McGlinn, S. (1994). Twenty-year follow-up of an enrichment program for students preparing for health professional schools. *Academic Medicine, 69,* 925-927.

Jackson, E.W., McGlinn, S., Smith, J., McKinley, J., & Bando, H.R. (1988). Follow-up study of an enrichment program for students preparing for health professional schools, 1972-1987. *Journal of Medical Education, 63,* 472-474.

Kamat, M.R. (1999, May/June). Educating health professionals: Are we failing minorities? *Closing the Gap,* 8-9. Retrieved November 26, 2000 from http:www.omhrc.gov/ctg/ctg-hp.pdf

Kitzhaber, J. (1989). Access to health care a United States concern. *American Family Physician, 40,* 195-215.

Kovner, A.R., & Jonas, S. (1999). *Health care delivery in the United States* (6th ed.). New York: Springer.

Kovner, C., & Salisburg, E. S. (1999). The health care workforce, In A.R. Kovner & S. Jonas (Eds.). *Health care delivery in the United States* (pp. 64-115). New York:

Springer.

Kronenfeld, J.J. (1993). *Controversial issues in health care policy.* Newbury Park, CA: Sage.

Laguardia, A. (1998). A survey of school/college partnerships for minority and disadvantaged students. *High School Journal, 82,* 97-113.

Lee, M.C. (1992). Programming minorities for medicine. *The Journal of the American Medical Association 267,* 2391-239.

Lewis, C.L. (1996). A state university's model program to increase the number of its disadvantaged students who matriculate into health professions schools. *Academic Medicine, 71,* 1050-1057.

Lourenco, S.V. (1983). Early outreach: Career awareness for health professions. *Journal of Medical Education, 58,* 39-44.

Lurie, N. (1999, May/June). Putting the right people in the right places. *Closing the gap,* 1,7. Retrieved November 26, 2000 from http:www.omhrc.gov/ctg/ctg-hp.pdf

Mack, D.L. (1999*). Perceptions of African American seniors regarding factors of institutional support at three predominantly white Tennessee state supported institutions of higher education.* (Doctoral dissertation, East Tennessee State University, 1999).

Marshall, C.L. (1973). Minority students for medicine and the hazards of high school. *Journal of Medical Education, 48,* 134-140.

McKendall, S.B., Simoyi, P., Chester, A.L., & Rye, J.A. (2000). Utilizing pre-college enrichment programming to minimize post-secondary education barriers to underserved youth. *Academic Medicine, 75,* 121-123.

Melton, H.M., & Brink, S. (1998, December 21). Health. *U.S. News & World Report, 125*, 71.

Millman, M. (Ed.). (1993). *Access to health care in America*. Washington, DC: National Academy Press.

Mosser, T. (1999). The picture of health. *Careers & Colleges, 20*, 15-20.

Nickens, H.W. (1992). The rationale for minority-targeted programs in medicine in the 1990s. *The Journal of the American Medical Association, 267,* 2390-2392.

Nickens, H.W. (1999). A strategy to tame the savage inequalities. *Academic Medicine, 74,* 310-311.

Northern Virginia Community College. (2002). Office of the President. Retrieved February 25, 2002, from Northern Virginia Community College Web site: http:// www.nvcc.edu/president/

Northern Virginia Community College Catalog. (2001-2002). Retrieved April 14, 2001, from Northern Virginia Community College Web site: http://www.nv.cc.va.us/catalog/cat2001/index.htm

NVCC Factbook. (1996-2000). Office of Institutional Research. Retrieved January 24, 2002, from Northern Virginia Community College Web site: http:// www.nv.cc.va.us/oir/factbook/fb00/ch2/fb00ch2.htm

NVCC HCOP. (2002). Retrieved February 25, 2002, from Northern Virginia Community College Web site: http:// www.nvcc.vccs.edu/annandale/health/hcop/

NVCC Student Profile. (Fall 2001). Office of Institutional Research. Retrieved April 14, 2002, from Northern Virginia Community College Web site: http:// www.nv.cc.va.us/oir/profiles/sprof401.htm/

Odegaard, C.E. (1977). *Minorities in medicine: From receptive passivity to positive action, 1966-1976.* New York: Josey Macy, Jr. Foundation.

Phillips, B.U., Mahan, J.M., & Perry, R.R. (1981). Minority recruitment to the health professions: A matched comparison six-year follow-up. *Journal of Medical Education, 56,* 742-747.

Rakich, J.S., Longest, B.B., & Darr,K. (1992). *Managing health services organizations*. Baltimore: Health Professions.

Rami, J.S., & Hansberry, A.H. (1994). Educating minority students for the health professions: Taking a quantum leap to meet the challenge. *Education, 115,* 80-86.

Reagan, M.D. (1992). *Curing the crisis: Options for America's health care.* Boulder, CO: Westview Press.

Richardson, R.C., & de los Santos, A.G. (1988). *Helping minority students graduate from college: A comprehensive approach.* (ERIC Document Reproduction Service ED 308 795)

Ricketts, T.C., III (1999). *Rural health in the United States.* New York: Oxford University Press.

Rodriguez, R. (1997). Reaching out, but in which direction? *Black Issues in Higher Education,13,* 16 –18.

Rye, J.A., & Chester, A. (1999). WVU – Community Partnership that provides science and math enrichment for underrepresented high school students. *Academic Medicine, 74,* 352-355.

Satcher, D. (1999). Removing the barriers to care. *Black Issues in Higher Education,*

*16,* 45-46.

Saeyer, W., & Valesky, J.C. (1984*). The effects of a summer enrichment program on the academic performance of minority and disadvantaged student in the following semester.* (ERIC Document Reproduction Service ED 251 548)

Schur, C.L., & Franco, S.J. (1999). Access to health care. In T.C. Ricketts, III (Ed.), *Rural Health in the United States* (pp.25-37). New York: Oxford University Press.

Shields, L.A. (1991). *El Paso community colleges health careers opportunity program (HCOP).* (ERIC Document Reproduction Service ED 337 231)

Steinbrook, R. (1996). Diversity in medicine. *The New England Journal of Medicine, 334,* 1327-1328.

Strayhorn, G. (1999). Participation in a premedical summer program for underrepresented-minority students as a predictor of academic performance in the first three years of medical school: Two studies. *Academic Medicine, 74,* 435-447.

Strayhorn, G. (2000). A pre-admission program for underrepresented minority and disadvantaged students: Application, acceptance, graduation rates, and timeliness of graduating from medical school. *Academic Medicine, 75,* 355-361.

Taylor, V., & Rust, G.S. (1999). The needs of students from diverse cultures. *Academic Medicine, 74,* 302-304.

Testoff, A., & Aronoff, R. (1983). The health careers opportunity program: One influence on increasing the number of minority students in schools of health professions. *Public Health Reports, 98,* 284-291.

Thomas, S. (1994). Opportunities in health. Black *Issues in Higher Education, 11,* 18-

19.

Thomson, W.A., & Denk, J.P. (1999). Promoting diversity in the medical school pipeline: A national overview. *Academic Medicine, 74,* 312-314.

Thurmond, V.B., & Mott, A. (1990). Minority students' career choices and education five years after they completed a summer enrichment program. *Academic Medicine, 65,* 478-479.

Thurmond, V.B., & Cregler, L.L. (1999). Why students drop out of the pipeline to health professions careers: A follow-up of gifted minority high school students. *Academic Medicine, 74,* 448-451.

Trevino, F.M., Sumaya, C., Miranda, M., Martinez, L., & Saldana, J.M. (1993). Increasing the representation of Hispanics in the health professions. *Public Health Reports, 108,* 51-58.

TRIO Dissemination Partnership Program (2001). Retrieved April 14, 2002, from the Federal TRIO Programs Web site: http://www.ed.gov/office/OPE/HEP/trio/

U.S. Department of Health and Human Services. (2000). Healthy People 2010. Retrieved April 14, 2002, from DHHS Web site: http:// www.health.gov/healthypeople/Document/tableofcontents.htm#volume1

Weppner, R.S., Bowman, S.Y., & Balsley, R.D. (1999). A review of the evaluation literature on health professions training and enrichment programs for minority/ disadvantaged students. *The Journal of Health Administration Education, 17* (1), 1-14.

Wholey, J.S., Hatry, H.P., & Newcomer, K.E. (Eds.). (1994*). Handbook of practical program evaluation.* San Francisco: Jossey-Bass.

Xu, G., Fields, S., Laine, C., Veloski, J., Barzansky, B., & Martini, C. (1997). The relationship between the race/ethnicity of generalists physicians and their care for underserved populations. *American Journal of Public Health, 87*, 817-822.

# APPENDIX A

## DATA COLLECTION INSTRUMENT

**HEALTH CAREERS OPPORTUNITY PROGRAM**

HCOP PROGRAM:_____

RECORD NUMBER:_____ HCOP YEAR:_____

## DEMOGRAPHIC DATA

GENDER: MALE ___ FEMALE ___

ETHNICITY:
AFRICAN AMERICAN _____ CAUCASIAN _____
HISPANIC _____ NATIVE AMERICAN_____
NATIVE ALASKAN _____ OTHER _____

PARENTS' MARITAL STATUS:
MARRIED _____ SEPARATED_____
DIVORCED _____ WIDOWED _____
SINGLE PARENT _____

FATHER'S EDUCATION LEVEL:
1. LESS THAN HIGH SCHOOL _____
2. HIGH SCHOOL GRADUATE / GED _____
3. SOME COLLEGE _____
4. COLLEGE GRADUATE _____
5. GRADUATE SCHOOL _____

FATHER'S OCCUPATION:_____

MOTHER'S EDUCATION LEVEL:
1. LESS THAN HIGH SCHOOL _____
2. HIGH SCHOOL GRADUATE / GED _____
3. SOME COLLEGE _____
4. COLLEGE GRADUATE _____
5. GRADUATE SCHOOL _____

MOTHER'S OCCUPATION:_____

YEARLY FAMILY INCOME (CHECK ONE)

| | | | |
|---|---|---|---|
| LESS THAN $5,000 | _____ | $5,000-9,999 | _____ |
| $10,000-$14,999 | _____ | $15,000-$19,999 | _____ |
| $20,000-$24,999 | _____ | $25,000-$29,999 | _____ |
| $30,000-$34,999 | _____ | $35,000-$39,999 | _____ |
| $40,000-$44,999 | _____ | $45,000-$49,999 | _____ |
| OVER $50,000 | _____ | | |

## SCHOLASTIC DATA

CLASS STANDING JUNIOR_____ SENIOR_____

HEALTH CAREER(S) OF INTEREST _____

GRADUATED FROM HIGH SCHOOL? YES___ NO___ GRADUATION YEAR _____

HIGH SCHOOL CUMULATIVE GPA_____

ACT (COMPOSITE) SCORE_____ SAT (TOTAL) SCORE_____
ENROLLED/ATTENDED COLLEGE? YES___ NO___

COLLEGE MAJOR_____

COLLEGE CUMMULATIVE GPA_____

GRADUATED FROM COLLEGE? YES___ NO___

ENROLLED IN POST-BACCALAUREATE STUDIES? YES____ NO____

AREA OF STUDY_____

GRADUATED YES____ NO____

EMPLOYED? YES ____ NO____

EMPLOYED IN HEALTH PROFESSION? YES____ NO____

IDENTIFY PROFESSION_____

APPENDIX B

## HCOP LEGISLATIVE PURPOSES INSTRUMENT

1. Institution:_____

2. Years of Operation:_____

3. Number of Students Completed Program (1990 – 1999):_____

4. Ethnicity Targeted:_____

5. Duration of HCOP Summer Project in Weeks:_____

6. Indicate each legislative purpose that is supported by your HCOP program:

| Legislative category | YES / NO |
|---|---|
| Recruitment | |
| Preliminary Education | |
| Facilitating Entry | |
| Retention | |
| Dissemination Financial Aid Information | |

7. Please describe in detail how the selected legislative purposes above are incorporated into the HCOP program. Example: Recruitment – strategies used, personnel required, travel, etc. (Attach additional sheets).

_____
_____
_____
_____
_____
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APPENDIX C

LETTER TO HCOP COORDINATORS

February 14, 2001

Beatrice Veney
HCOP Director
Northern Virginia Community College
Annandale Campus
8333 Little River Turnpike
Annandale, VA 22003

Dear Ms. Veney:

My name is Nancy G. Harless, Program Coordinator of the Health Careers Opportunity Program at East Tennessee State University. Our program is pleased to work with Ms. Virloy Lewin, a doctoral candidate at ETSU in Educational Leadership. She is involved in a study to determine the profile and demographic characteristics of HCOP programs in selected institutions in Tennessee, Kentucky, and Virginia. Your university has been selected as a potential participant, and we are seeking your cooperation and consent.

The study will gather data regarding student demographic and scholastic information. No personal identifiers will be published. Attached is a copy of the data collection instrument. Information regarding the legislative purposes supported by your program will also be gathered. A copy of this instrument is also attached.

Data collection may be accomplished in two possible manners. Ms. Lewin can come to your institution and gather the data from your records. If more convenient, you can supply the information via mail, fax, or e-mail. Targeted years are 1990-1999, and information will be gathered on program completers only.

We hope you will participate in this important study of HCOP programs. For further information, feel free to contact Ms. Lewin at (423)-433-3380 or v_lewin@hotmail.com, or myself at (866)-526-6678 or hcope@etsu.edu. Ms. Lewin will contact in the near future to further discuss this matter. Thank you for your time and attention.

Sincerely,

Nancy G. Harless, Program Coordinator

February 14, 2001

Julie Baldwin Brown, M.S.
HCOP Coordinator
Eastern Kentucky University
521 Lancaster Avenue
Richmond, KY 40475-3130

Dear Ms. Brown:

My name is Nancy G. Harless, Program Coordinator of the Health Careers Opportunity Program at East Tennessee State University. Our program is pleased to work with Ms. Virloy Lewin, a doctoral candidate at ETSU in Educational Leadership. She is involved in a study to determine the profile and demographic characteristics of HCOP programs in selected institutions in Tennessee, Kentucky, and Virginia. Your university has been selected as a potential participant, and we are seeking your cooperation and consent.

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Data collection may be accomplished in two possible manners. Ms. Lewin can come to your institution and gather the data from your records. If more convenient, you can supply the information via mail, fax, or e-mail. Targeted years are 1990-1999, and information will be gathered on program completers only.

We hope you will participate in this important study of HCOP programs. For further information, feel free to contact Ms. Lewin at (423)-433-3380 or v_lewin@hotmail.com, or myself at (866)-526-6678 or hcope@etsu.edu. Ms. Lewin will contact in the near future to further discuss this matter. Thank you for your time and attention.

Sincerely,

Nancy G. Harless, Program Coordinator

APPENDIX D

FOLLOW-UP LETTERS TO HCOP COORDINATORS

March 5, 2001

Beatrice Veney
HCOP Director
Northern Virginia Community College
Annandale Campus
8333 Little River Turnpike
Annandale, VA 22003

Dear Ms. Veney:

My name is Virloy Lewin and I am a doctoral student at East Tennessee State University (ETSU) in the Department of Educational Leadership. I am following up on an email sent to you from Nancy Harless, ETSU HCOP coordinator, re: participating in a study to determine the demographic characteristics and scholastic information of HCOP participants at selected institutions.

The purpose of the study is to examine each of the selected HCOP projects to determine, describe and assess their overall effectiveness and identify successful strategies used by each project to reach their specific program objectives. I am examining only pre-baccalaureate HCOP programs and participants between the years of 1990 and 1999. I assure you that no personal identifiers will be published and a copy of the results will be forwarded to you at the completion of the study. I believe that this study will provide beneficial information to current HCOP programs in that there is limited information on the success of HCOP programs.

I am writing to verify if you are willing to participate in the study. And if you are willing to participate in the study what is the best method to gather the data from participant records. In the previous email from Ms Harless, it was stated that data collection could be accomplished in two possible manners. I can come to your institution and gather the data from your records or if more convenient you can supply the information.

If you have any further questions and concerns, please do not hesitate to contact to me. Thank you for your time and I hope to hear from you shortly.

Sincerely,

Virloy E. Lewin
v_lewin@hotmail.com
(423) 433-3380

March 5, 2001

Julie Baldwin Brown
HCOP Coordinator
Eastern Kentucky University
521 Lancaster Avenue
Richmond, KY 40475-3130

Dear Ms. Brown:

My name is Virloy Lewin and I am a doctoral student at East Tennessee State University (ETSU) in the Department of Educational Leadership. I am following up on an email sent to you from Nancy Harless, ETSU HCOP coordinator, re: participating in a study to determine the demographic characteristics and scholastic information of HCOP participants at selected institutions.

The purpose of the study is to examine each of the selected HCOP projects to determine, describe and assess their overall effectiveness and identify successful strategies used by each project to reach their specific program objectives. I am examining only pre-baccalaureate HCOP programs and participants between the years of 1990 and 1999. I assure you that no personal identifiers will be published and a copy of the results will be forwarded to you at the completion of the study. I believe that this study will provide beneficial information to current HCOP programs in that there is limited information on the success of HCOP programs.

I am writing to verify if you are willing to participate in the study. And if you are willing to participate in the study what is the best method to gather the data from participant records. In the previous email from Ms Harless, it was stated that data collection could be accomplished in two possible manners. I can come to your institution and gather the data from your records or if more convenient you can supply the information.

If you have any further questions and concerns, please do not hesitate to contact to me. Thank you for your time and I hope to hear from you shortly.

Sincerely,

Virloy E. Lewin
v_lewin@hotmail.com
(423) 433-3380

APPENDIX E

## HCOP LEGISLATIVE PURPOSES INSTRUMENT

1. Institution: ___Northern Virginia Community College_____

2. Years of Operation: ___1994-2000 (6 years)_____

3. Number of Students Completed Program (1990 – 1999): _117_____

4. Ethnicity Targeted: _____Black and Hispanic_____

5. Duration of HCOP Summer Project in Weeks: 6-8 weeks (depending on year)

6. Indicate each legislative purpose that is supported by your HCOP program:

| Legislative category | YES / NO |
|---|---|
| Recruitment | **YES** |
| Preliminary Education | **YES** |
| Facilitating Entry | **YES** |
| Retention | **YES** |
| Dissemination Financial Aid Information | **YES** |

7. Please describe in detail how the selected legislative purposes above are incorporated into the HCOP program. Example: Recruitment – strategies used, personnel required, travel, etc. (Attach additional sheets).

## HCOP LEGISLATIVE PURPOSES INSTRUMENT

1. Institution: Eastern Kentucky University

2. Years of Operation: 1994 – present (8 years)

3. Number of Students Completed Program (1990 – 1999): 175

4. Ethnicity Targeted: Appalachian Financially or Academically Disadvantaged (primarily Caucasian)

5. Duration of HCOP Summer Project in Weeks: 6 weeks

6. Indicate each legislative purpose that is supported by your HCOP program:

| Legislative category | YES / NO |
|---|---|
| Recruitment | **YES** |
| Preliminary Education | **YES** |
| Facilitating Entry | **YES** |
| Retention | **YES** |
| Dissemination Financial Aid Information | **YES** |

7. Please describe in detail how the selected legislative purposes above are incorporated into the HCOP program. Example: Recruitment – strategies used, personnel required, travel, etc. (Attach additional sheets).

## HCOP LEGISLATIVE PURPOSES INSTRUMENT

1. Institution: East Tennessee State University

2. Years of Operation: 1994-2001

3. Number of Students Completed Program (1990 – 1999): 101

4. Ethnicity Targeted: Appalachian Disadvantaged

5. Duration of HCOP Summer Project in Weeks: 6 weeks

6. Indicate each legislative purpose that is supported by your HCOP program:

| Legislative category | YES / NO |
|---|---|
| Recruitment | **YES** |
| Preliminary Education | **YES** |
| Facilitating Entry | **YES** |
| Retention | **YES** |
| Dissemination Financial Aid Information | **YES** |

7. Please describe in detail how the selected legislative purposes above are incorporated into the HCOP program. Example: Recruitment – strategies used, personnel required, travel, etc. (Attach additional sheets).

# VITA

## VIRLOY E. LEWIN

| | |
|---|---|
| Personal Data: | Date of Birth: October 26, 1968<br>Place of Birth: Pembroke, Bermuda<br>Marital Status: Married |
| Education: | Public Schools, Pembroke, Bermuda<br>Northern Caribbean University, Mandeville, Jamaica;<br>Biological Sciences, B.S., 1990<br>East Tennessee State University, Johnson City, Tennessee;<br>Public Health, M.P.H., 1996<br>East Tennessee State University, Johnson City, Tennessee;<br>Educational Leadership, Ed.D., 2002 |
| Professional Experience: | Tuition Scholar, East Tennessee State University; College of Public and Allied Health, 1995<br>Graduate Assistant, East Tennessee State University, College of Nursing, 1995<br>Graduate Assistant, East Tennessee State University, Office of the President, 1995–1996<br>Intern, VA Medical Center, Mountain Home, Johnson City, TN<br>Spring, 1996<br>Intern, East Tennessee State University, Health Careers Opportunity Program, Fall 1999 and Spring 2000<br>Doctoral Fellow, East Tennessee State University, College of Education, 1997–2002 |
| Honors and Awards: | Bermuda Further Education Award<br>International Peace Scholarship for Women (PEO)<br>Phi Kappa Phi Honor Society |